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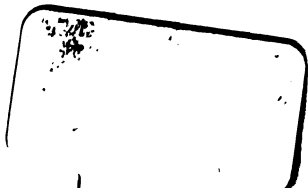
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THE  
**MERCHANTS' HANDBOOK**

OF  
**THE MONEY, WEIGHTS, AND MEASURES  
OF ALL NATIONS,**

**WITH THEIR BRITISH EQUIVALENTS.**

BY

**W. A. BROWNE, LL.D.**

*Second Edition.*



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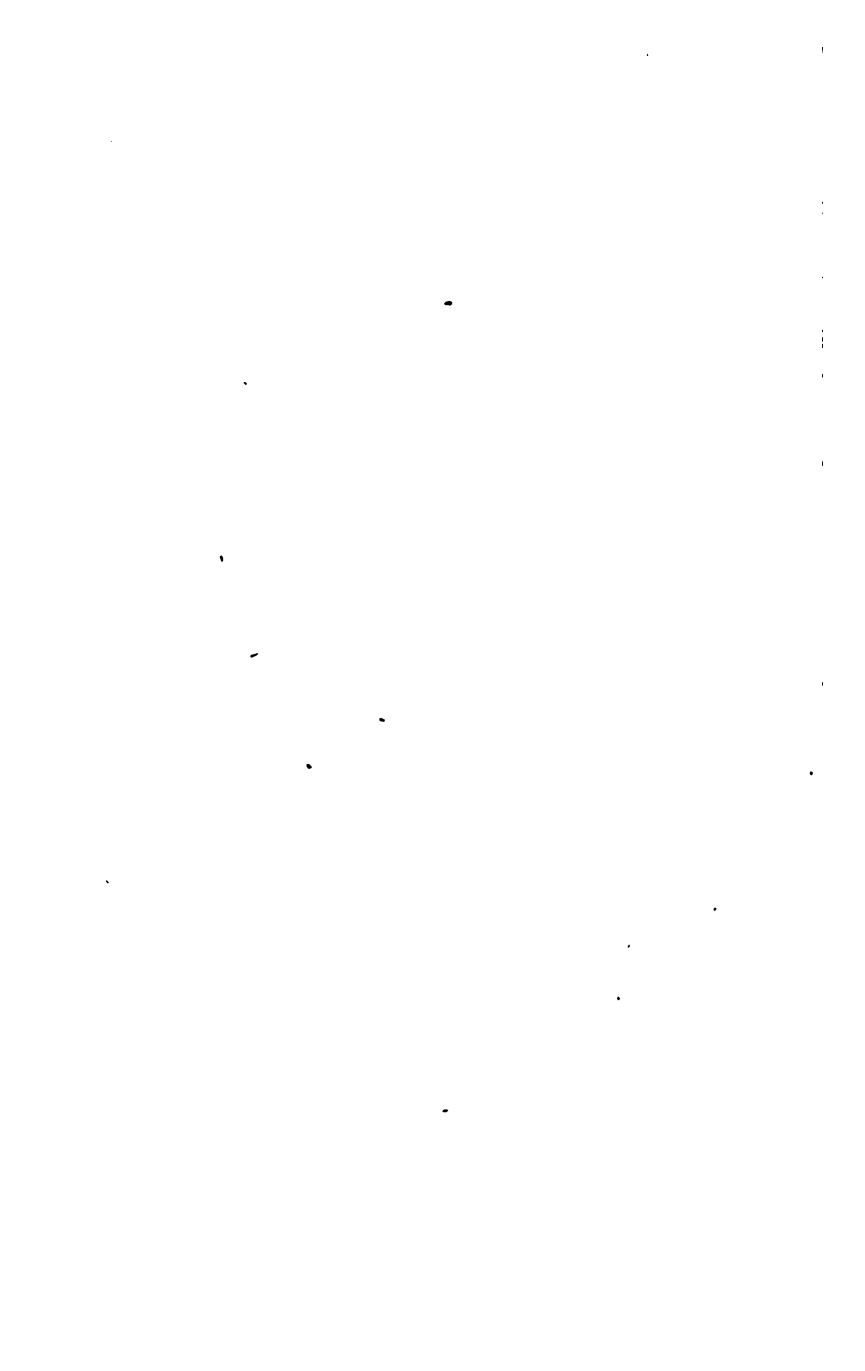
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## P R E F A C E,

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A VERY few words will explain the object of this treatise. It purports to be a book of reference for the use of those engaged in domestic and foreign commerce. It states under each country the denominations of money used in keeping accounts, and shows their British value. It enumerates under distinct heads the gold, silver, and copper, or bronze coins, and the measures and weights of each country, and gives their English, as also their French or Metric values. This information is, to a great extent, official. It is mainly based upon the authority of gentlemen who have long resided in the countries treated of. A series of questions on the coinage and metrology of the several countries was addressed to the Foreign Ministers and Consuls in the United Kingdom, and to the English Ministers and Consuls abroad. In almost all cases clear and satisfactory answers were promptly and courteously afforded. The author is fully aware that such a species of labour does not fall within the range of either Ministerial or Consular duties, and it is for that reason that he feels and acknowledges himself so much indebted to the members of the Diplomatic and Consular Services at home and abroad.





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## PART I.

# M O N E Y .

### GENERAL OBSERVATIONS.

MONEY or the "currency" is the standard measure of the value of commodities and the medium of exchanging them one for another. It is called a measure of value because the price of everything bought and sold is measured by it. The word money comes to us from the Latin *moneta*, a surname of Juno, in whose temple, at Rome, money was coined. In its original sense money meant stamped coin, and afterwards anything that takes the place of stamped coin in buying or selling, and serves as its equivalent, such as bank notes.

The earliest record of money, as a medium of exchange, is the purchase (about B.C. 1859) of the field and cave of Machpelah, by Abraham, from Ephron, the Hittite, for "400 shekels of silver current money with the merchants."—(Gen. xxiii. 16.) Homer speaks of brass money as existing in 1184 B.C. Herodotus states (I. 94) that the Lydians, at Ægina, in B.C. 183, were the first who coined gold and silver money, but the Parian chronicle attributes the coinage of both gold and silver money to Pheidon, of Argos, B.C. 895.

55 Anything which everybody consents to use as a medium of exchange, and a measure of value in buying and selling may be considered as money. The members of the same community in buying and selling among themselves may use as a medium of exchange and a standard of value anything in which they all have entire confidence. But the medium selected, whatever it may be, must possess all the constituents of value. It must be *limited in supply, useful and transferable*. If a thing selected to serve as money can be arbitrarily increased or diminished, the *prices* of all things bought and sold by it will *rise* with its increase and fall with its diminution in quantity. Prices are said to *rise* when more money is required to pay for a given quantity of any article, and to *fall* when a smaller amount of money pays for the same quantity. In different stages of civilization various articles have been used as money, such as elephants' teeth, furs, small white glossy shells called cowries, tobacco, silk, hides, iron rings. Iron money was used in Sparta, and iron and tin in Britain; money was made of

▲

pasteboard by the Hollanders so late as 1574. But gold and silver—the precious metals, as they are called,—are now used as money in almost all parts of the world. This preference has been given to them because they possess, in a high degree, the requisite conditions of a medium of exchange and a measure of the value; those namely of usefulness, limited supply, transferableness, portability, divisibility, and durability. In other words, the precious metals command universal confidence in their value, they are easily carried, and they cannot be arbitrarily increased or diminished in quantity. In early ages gold and silver, usually in ingots, circulated by weight; and the denominations of money were the same as those of weight. Possibly even as early as the Trojan war gold was used as a medium of exchange or a common measure of commodities. In the Homeric poems an ox seems to approximate to a standard of value, and gold is mentioned as an article of stored wealth, although it is not spoken of as a measure of other commodities. Mr. Gladstone\* thinks that he finds the germ of the practice of using gold as money in the payment of the judge's fee or prize in gold on the shield of Achilles† The gold coins of Miletus, in Asia Minor, which were probably made about the year B.C. 800, are supposed to be the earliest gold coins. The gold darics of Persia began to be issued about the year 538 B.C., and the Sicilians established a gold coinage as early as 400 B.C. The Romans first used gold coins in B.C. 206. The modern gold coinage of Europe was commenced by the Florentines in A.D. 1252. As early as the reign of Romulus, the Romans used copper, by weight, as a circulating medium. The square "As," in copper, was issued previous to the reign of Servius Tullius, B.C. 578, and the circular "As" about B.C. 385. As commerce extended the inconvenience of weighing the gold and silver, and testing their purity, led to the introduction of *coins*. Coins are pieces of metal, usually gold, silver, platinum, copper, or nickel, impressed with a stamp as a guarantee of their purity and weight. Æschylus mentions that the earliest sign impressed on money was the figure of an ox, the sign being probably intended to represent the animal's equivalent value in the metal.‡ Coins became the medium of exchange and the measure of value among the members of the same political community; but for transactions between different political communities bars or ingots of gold and silver, estimated by weight, are still occasionally used.

Pure gold and silver are too soft to serve as media of ex-

\* *Juventus Mundi*, p. 446.

† *Iliad* XXIII. 702-5. *Iliad* XXI. 79. *Od.* I. 481.

‡ *Æs.* *Ag.* 87. "*Juventus Mundi*," 586.

change, and for that reason they are usually alloyed, that is, mixed with a small proportion of harder or less valuable metals.

The quantity of alloy varies in different countries, and in all cases the standard of a coin, that is, its degree of purity or fineness, as well as its weight must be taken into account. The value of the alloy is always disregarded in estimating the worth of a coin.

In some countries one metal only is used in the coinage as a standard of value, that is, as a *legal tender* of payment without limitation. In other countries both gold and silver are used, their relative value being settled at a fixed rate. A double standard of value is objectionable, because gold and silver fluctuate in price like other marketable commodities. If the price of one of them at any time is raised disproportionately above that of the other, the undervalued metal is immediately driven out of the circulation, and is exported because it will realise a higher price in other countries in proportion to the other metal.

The phrase "moneys of account" means the denominations and divisions of money in which accounts are kept. The moneys of account may either be identical with the current coins, or may bear definite proportions to them.

Silver coin has long been the basis of the money of account of the greatest part of the world, and silver is almost universally the standard measure of commerce in most countries.

In Great Britain gold has long been the principal measure of property and the standard of value.

## EXCHANGES.

Exchange signifies the giving or receiving, in return for a sum of money in the currency of one country, an equivalent sum in the currency of another country. The term *Exchange* is used in two senses by merchants. It denotes the securities (Bills of Exchange) by means of which debts to creditors in distant countries are liquidated without the transmission of gold and silver. It also denotes the varying price (course of exchange) of such securities in the market.

BILLS OF EXCHANGE are written orders for the payment of money at some date fixed or ascertainable by the Bill. They are written documents, by means of which traders settle their liabilities without the transmission of gold and silver.

The person who gives the order is called the **DRAWER**; the person to whom the bill is addressed is called the **DRAWEE** or (when he has written his name across the bill) the **ACCEPTOR**; and the person who has the bill in his possession is called the **HOLDER**.

The holder of a bill, when he transfers it, writes his name across the back of it. This is called *endorsing* it. Thus the holder in transferring a bill becomes the **ENDORSER**, and the person to whom he transfers it is called the **ENDORSEE**.

A Bill may pass in this way through the hands of any number of persons, and each of such persons is conjointly responsible with the other endorsers, and with the drawer and acceptor of the bill for payment of the amount named in it.

Endorsement is the signature of the person who transfers the bill. Special endorsement is an order from the endorser making the bill payable to the order of the holder.

The periods for which bills are drawn vary with the purposes of the bills, and the usages of different places. Some are drawn at sight, some at so many days. The term *usage* denotes the usual or customary period for which bills are drawn at one place upon another.

The term **EFFECTIONS** is used in Bills of Exchange to indicate *coin* or *specie* as distinguished from paper money.

Bills of Exchange are classed as *Inland* and *Foreign*. An Inland Bill of Exchange is one drawn and payable in the same country. A Foreign Bill of Exchange is a document authorising the payment in a foreign country of a sum of money specified in the Bill; for instance, a Bill on Paris, wherever drawn, is, as regards London, a Foreign Bill.\*

The amount of Foreign Money to be paid to the person in whose favor the Bill is drawn is fixed by the Bill, but the price of the Bill, that is, the sum of money that is to be given for it in the currency of the country where the Bill is drawn, is perpetually fluctuating. The constant variations in the price of Bills of Exchange depend upon the supply of Bills in the market compared with the demand for them, and upon the comparative value of the currencies of different countries.

The phrase **NOMINAL EXCHANGE** refers to the value of the currency in which Bills of Exchange are to be paid, as compared with the money in which they are bought; and **REAL EXCHANGE** has reference to their abundance or scarcity compared with the demand for them.

The relative intrinsic value of the currencies of different countries depends upon the quantity of pure gold or pure silver

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\* Bills drawn in a foreign country on London are sometimes, but incorrectly called, in London, Foreign Bills.



contained in those currencies, the value of the alloy being always disregarded.

The PAR OF EXCHANGE between two countries using the same metal as their standard of value is that sum of money of either country which contains an exactly equal weight of gold or silver of the same purity.

Political economists object to this definition, as disregarding the difference in value of the precious metals in some countries where mines exist and gold and silver are in abundance as compared with other countries not similarly situated. But for all practical purposes this difference is so trifling that it may be left out of account. It has been calculated that throughout Europe gold "finds its level to within  $\frac{1}{4}$  per cent."

We may therefore regard the *Par of Exchange* as the equivalent intrinsic value of a given unit of the currency of one country estimated in the currency of another country, both using the same metal as a standard.

The relative value of gold and silver is liable to slight fluctuations; and when two countries use, the one gold and the other silver, there can be no invariable *Par of Exchange* between those countries. In such cases an *approximate par* is calculated from the average price of gold and silver in the market. Hence we have a third definition of the PAR OF EXCHANGE: it is the fixed standard *rate* of exchange between different countries, and is determined by the weight, purity, and market prices of the precious metals in the coinage of the respective countries.

The relative value of gold and silver in the general market of the commercial world is in the proportion of about 15 $\frac{1}{2}$  to 1.

INLAND EXCHANGE is the liquidation of liabilities by means of Bills of Exchange between members of the same political community.

FOREIGN EXCHANGE is the remittance of Bills to foreign countries in discharge of liabilities.

In Foreign Exchanges when one place gives another a fixed sum, such as £1 sterling for a variable sum expressed in other coins, the fixed sum is called the *certain or fixed price*, and the variable, the *uncertain or variable price*. The place whose money is reckoned at the *fixed price* is said to *receive* and the other is said to *give* the variable prices.

When the rate of exchange between two places is high it is more favourable to the place that *receives* the *variable price*; the lower the rate of exchange the more it is in favour of the place that *gives* the variable price and *vice versa*. For instance, exchange with Vienna is said to be favourable to London when a given sum in British sterling money would purchase more Austrian money (florins and kreuzers) than usual.

"Fluctuations in the *nominal* price of bills drawn by one country upon another will arise principally from an alteration in the weight or firmness of the coins of either of the countries, or an alteration in the total amount of the currency of either country without a corresponding alteration in the commodities to be circulated. When the currency of a country is depreciated, either from degradation of the coin or from relative over issue," it will purchase less foreign money, and foreign bills will sell for an increased amount of the depreciated currency, the increase being proportionate to the depreciation; that is, foreign bills will sell at a premium. On the other hand, a bill drawn upon the country whose currency is depreciated will be "bought abroad, where money retains its value, for a much less nominal sum than the amount for which it is drawn;" that is, such bills will sell at a discount.

When two countries are each other's customers in buying and selling, and the one *exports* goods to the other to an amount equal to the value of the goods she imports from that other, then the transactions balance each other and are settled by Bills of Exchange. The bills drawn by the merchants *exporting* are exactly equal to those drawn by the merchants *importing*, and the transmission of specie or bullion is unnecessary. But when one country imports goods from the other beyond the amount of her exports to it, a balance—that is, the excess of the imports over the exports—remains to be paid for. This is called the *balance of trade*.\* To pay for this balance a merchant in the debtor country, rather than transmit specie, will give for a Bill of Exchange on the creditor country more than the sum for which it is drawn. Hence bills upon the creditor country, will be at a *premium*. On the other hand, in the creditor country, bills will be abundant. The supply will be in excess of the demand. As the excess is only convertible into coin by being sent to the place on which the bills are drawn, and as this involves risk and expense, the holders of such bills will be satisfied to receive for them a little less than the amount specified. Hence in the creditor country, bills will be at a *discount*. The premium in the one country corresponds to the discount in the other. But neither the premium nor the discount can long exceed the expense of transmitting specie or bullion. When therefore there is a balance of imports to be paid for to a foreign country, foreign Bills of Exchange will be at a premium, and when there is a balance of exports, foreign bills will be at a discount; but the amount of this premium or discount will seldom exceed the expense of transmitting gold and silver.

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\* The *balance of trade* is identical with the *balance of payments* when two countries buy from each other on equal periods of credit; but not so where the periods of credit are different.

The **COURSE OF EXCHANGE** may be defined to be the current prices of exchange, or the prices given from time to time in one country for Bills of Exchange payable in the currency of another. It is the *variable* price (estimated in the currency of one country) which is given for a *fixed* sum in the currency of another country.

## THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND.

The money of account consists of pounds, shillings, and pence sterling.\* It is as follows:—

<i>British value.</i>	<i>Systematic name.</i>	<i>French value.</i>
4 Farthings = 1 Penny	=	12 Centimes.
12 Pence = 1 Shilling	=	1 Franc 26 „
20 Shillings = 1 Pound sterling	=	25 „ 20† „

The currency of the United Kingdom consists of gold, silver, and bronze coins; and of Bank Notes, exchangeable on demand at their full nominal value, for gold and silver.

The Saxons and Danes used brass and silver money. The Normans discontinued brass, and used silver only. Gold money was introduced in the reign of Henry III. Copper money was introduced in 1672, and was replaced by bronze money in 1860.

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\* The term *sterling* distinguishes the currency of Great Britain and Ireland from that of the British Colonies, and from some Continental moneys bearing the same names. *Sterling* is an abbreviation of *Easterlings*, the name by which *Eastphalian* traders, the ancestors of the merchant princes of Hamburg, were known in England. Their money was of the finest quality, and hence *Esterling* shortened into *sterling* became a general term for pure money.

† The letters *£ s. d.* (the initials of the Latin words *libra, solidi, and denarii*) are used in accounts to denote respectively *pounds, shillings, and pence*, and are either written over or at the side of those denominations. Farthings are generally written as fractions of a penny, and are seldom considered as integers, but when they are, the letter *q.* (the initial of the Latin *quadrantes*) is written over them. As fractions they are written as follows:— $\frac{1}{4}$  = 1 farthing;  $\frac{1}{2}$  = 2 farthings or 1 halfpenny;  $\frac{3}{4}$  = 3 farthings.

## GOLD COINS.

Five Pounds	= 126 Francs	
Two Pounds	= 50	„ 40 Centimes.
One Pound (Sovereign)	= 25	„ 20 „
Ten Shillings ( $\frac{1}{2}$ do.)	= 12	„ 60 „

Although five pound and two pound pieces are still among the current coins of the realm, none of these have been struck for general circulation for the last 40 years, because there has been no demand for them.

## SILVER COINS.

Crown (5 shillings)	= 6 Francs 30 Centimes.
Half-crown (2 Shillings & 6 pence)	= 3 „ 15 „
Florin (2 shillings)	= 2 „ 54 „
Shilling	= 1 „ 27 „
Sixpence	= 0 „ 63 $\frac{1}{2}$ „
Groat (fourpence)	= 0 „ 42 $\frac{1}{2}$ „
Threepence	= 0 „ 31 $\frac{1}{2}$ „
Twopence	= 0 „ 21 „
Penny	= 0 „ 10 $\frac{1}{2}$ „

No crowns or half-crowns have been struck since 1851. No more half-crowns will be struck; they are being gradually withdrawn from circulation. No Groats have been struck since 1856. Twopenny and pennypieces are not in very general use. Silver fourpences, threepences, twopences, and pennies are struck every year and distributed, on the Thursday before Easter, as alms by the Sovereign, under the name of Her Majesty's Maundy Moneys, but the groat struck for that purpose has a different design from the groat in general circulation.

## BRONZE COINS.

Penny	= 0 Francs 10 $\frac{1}{2}$ Centimes.
Halfpenny	= 0 „ 5 $\frac{1}{2}$ „
Farthing	= 0 „ 2 $\frac{1}{2}$ „

The present bronze coinage was introduced in 1860 (Act 22, Vic. c. 30), and the copper coinage was called in. The withdrawal of copper continued until the 31st December, 1869, after which date that coinage was no longer current. The bronze coins are composed of 95 parts by weight of copper to 4 of tin and one of zinc. A pound of the bronze is coined into 48 penny pieces, or 80 half-penny pieces, or 160 farthing

pieces. The penny measures in diameter  $1\frac{1}{2}$  inches, the half-penny 1 inch, and the farthing  $\frac{3}{4}$  of an inch.\* Tin was used for coinage in 1680, when farthings were struck in that metal with a stud of copper let into the centre; and, again, in 1690-91, when both half-pence and farthings were issued.

### BANK NOTES.

£5, £10, £20, £50, £100, £500, £1,000 of the banks of England, Ireland, and Scotland, and notes for £1 of the banks of Ireland and Scotland. In England the Irish and Scotch notes are at a slight discount. Bank of England notes are a legal tender for any sum over £5.

In the United Kingdom gold is the standard basis of the currency and the principal measure of property and exchange; it is coined at the rate of £48 14s. 6d. (or £46·725) to the pound weight Troy.

Silver coins are merely tokens or representative coins, and form a subsidiary and subordinate currency. They are coined at the rate of 66s. to the pound weight Troy.

Bank of England Notes are a legal tender for any sum over £5.

By the Coinage Act, 33 Vict., cap. 10, gold coins are a legal tender for a payment of any amount; silver coins for a payment of an amount not exceeding 40s., but for no greater amount; bronze coins for a payment of an amount not exceeding 1s., but for no greater amount.

Previous to the passing of the above Act in 1870 a sum above 40s. should be paid in gold coin; for a sum below 40s. silver coin was a legal tender.

Copper in pence and halfpence was a legal tender for any sum under 1s., but in farthings it was not a legal tender for more than 6d.

The Bank of England buys gold at the rate of £3 17s. 9d. per ounce standard, as provided in the Act 7 and 8 Vict., cap. 32, sec. 4. Anyone may "demand from the Bank of England Bank of England Notes in exchange for gold bullion at the rate of £3 17s. 9d. per ounce of standard gold, such gold bullion to be assayed at the expense of the parties tendering it."

Gold and silver bullion are weighed in ounces and decimal parts, in accordance with Act 16 and 17 Vict., cap. 29; previously the weights were expressed in lbs., ozs., dwts., and grs. For the convenience of the Mint the maximum weight of a gold bar bought by the Bank is fixed at 200 ozs.

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\* In the Isle of Man, up to 1840, a copper currency existed, of which 14d. was equivalent to 1s. British, and £1 8s. 4d. to £1 sterling. In that year British sterling money became the currency of the Island.

The Bank buys gold on assay reports expressed in thousandths and thirds of thousandths\* better or worse than standard.

The degree of fineness of gold as ascertained by assay is expressed decimally, fine pure gold being taken as unity or 1000.

English standard gold which contains  $\frac{1}{10}$ ths of fine gold, and  $\frac{9}{10}$ th of alloy is said to be .9166 fine. In other words, 1000 parts of standard gold contains 916 $\frac{2}{3}$  parts of fine gold, and 88 $\frac{1}{3}$  parts of alloy.

The degree of fineness, or the *report* of gold, may be expressed either by the number of parts of fine gold in the whole mass, or by the number of parts better or worse than standard. For example, fine gold may be taken as (unity) 1000 or as 88 $\frac{1}{3}$  thousandths *better* than standard, and gold having a fineness of 833 $\frac{1}{3}$  thousandths is 83 $\frac{1}{3}$  thousandths *worse* than standard. The rule for standarding gold, that is, for reducing the gross or actual weight to what the weight would be if it were really standard—is, to multiply the gross weight by the *report*, and divide the product by the number of parts in standard. Thus:

1. If the report express the number of parts of fine gold in the whole mass—say, for example, 992 $\frac{1}{2}$ —then multiply the gross weight by 992 $\frac{1}{2}$ , and divide the product by 916 $\frac{2}{3}$ .

2. If the report express the number of parts of fine gold better or worse than standard—say 75 $\frac{1}{2}$ —multiply the gross weight by 75 $\frac{1}{2}$ , divide as before, and add the product to, or subtract it from, the gross weight, as the case may be.

Gold bars are sold at £3 17s. 10 $\frac{1}{2}$ d. per ounce standard. Gold coins of various countries are bought by the Bank of England, and the buying price is determined by the rate at which the Bank can convert the coin into bars, at 77s. 9d. per oz. standard. The selling price is fixed with reference to the rate which will make the particular coin preferable to bar gold or sovereigns when gold is wanted for export.

The Mint undertakes to return to the Bank the full weight standard in coined gold without any deduction at 77s. 10 $\frac{1}{2}$ d. per oz.

English light gold coin is cut and withdrawn from circulation under authority of the Act 14, Geo. III., cap. 70, sec. 10, and a Royal proclamation of the 3rd June, 1842. The melting and export of coin is legalised by the Act 59, Geo. III., cap. 49, sec. 10. The defacing of coin is prohibited by the Act 16 and 17 Vict., cap. 102.

Silver bullion is purchased by the Bank of England at a price fixed by the rate at which silver could be resold, and the proceeds realised in bar gold at 77s. 9d. per ounce.

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\* "Gold standarding tables to one-three-thousandth part." "Bank of England, 1870,"

The standard of British silver is  $\frac{311}{1000}$ ths; that is, 222 dwts. pure in 240 dwts., or an alloy of 18 dwts. in the lb. troy.

The purity of silver bullion or of foreign silver coin, with reference to this standard is expressed in dwts. by the terms *betterness* or *worseness*, meaning so many dwts. more or less than 222, as the case may be, in the lb. troy (240 dwts.) Thus bullion or coin found on assay to contain 238 dwts. of pure silver in the lb. is reported *better* 16 dwts.; and bullion or coin containing 206 dwts. pure in the lb. is reported *worse* 16.

To determine how much silver of standard fineness is equivalent to a given weight of bullion or foreign coin of a given *betterness* or *worseness*:—

I. When the bullion is *better* than standard add the *betterness* to 222, multiply the weight of bullion by the sum, and divide the product by 222.

EXAMPLE.—How much standard silver is equivalent to 1000 oz. of bullion which is *better*  $17\frac{1}{2}$ ?— $(1000 \times 222 + 17\frac{1}{2}) \div 222 = 229500 \div 222 = 1033\frac{1}{2}$  or 1033 $\frac{1}{2}$  oz. standard.

II. When the bullion is *worse* than standard, deduct the *worseness* from 222, multiply the weight of bullion by the remainder, and divide the product by 222.

EXAMPLE.—How much standard silver is equivalent to 1,000 ozs. of bullion represented, *worse* 16?  $(1000 \times 222 - 16) \div 222 = 221984 \div 222 = 1000 \times 206 \div 222 = 206000 \div 222 = 927\frac{2}{3}$  oz. standard.

The weight and fineness of the coins specified in the following table are according to what is provided by the Act fifty-six George the Third, chapter sixty-eight, that the gold coin of the United Kingdom of Great Britain and Ireland should hold such weight and fineness as were prescribed in the then existing Mint indenture (that is to say), that there should be nine hundred and thirty-four sovereigns and one ten shilling piece contained in twenty pounds weight troy of standard gold, of the fineness at the trial of the same of twenty-two carats fine gold and two carats of alloy in the pound weight troy; and further, as regards silver coin, that there should be sixty-six shillings in every pound troy of standard silver of the fineness of eleven ounces two pennyweights of fine silver and eighteen pennyweights of alloy in every pound weight troy.

The following table shows the weight and fineness of British coins as laid down in the "Coinage Act, 1870," 33 Victoria chap. 16:—

Denomination of Coin.	Standard Weight.		Least Current Weight.		Standard Fineness.	Remedy Allowance.		
	Imperial Weight.	Metric Weight.	Imperial Weight.	Metric Weight.		Weight per piece.		
	Grains.	Grams.	Grains.	Grams.		Imperial Grains.	Metric Grams.	Millesimal Fineness.
<b>GOLD:</b>								
Five Pound	- 616.37359	39.94028	612.50000	39.68935	Eleven-twelfths fine gold, one-twelfth alloy; or millesimal fineness 916.66.	1.00000	0.06479	0.002
Two Pound	- 246.54895	15.97611	245.90000	15.87574		0.40000	0.02592	
Sovereign	- 123.27447	7.98805	122.50000	7.93787		0.20000	0.01296	
Half Sovereign	- 61.63723	3.99402	61.12500	3.96083		0.10000	0.00648	
<b>SILVER:</b>								
Crown	- 436.36363	28.27590	-	-	Thirty-seven-fortieths fine silver, three-fortieths alloy; or millesimal fineness 925.	1.81818	0.11781	0.004
Half Crown	- 218.18181	14.13795	-	-		0.90909	0.05890	
Florin	- 174.54545	11.31036	-	-		0.72727	0.04712	
Shilling	- 87.27272	5.65518	-	-		0.36363	0.02356	
Sixpence	- 43.63636	2.82759	-	-		0.18181	0.01178	
Groat or Fourpence	- 29.09090	1.88506	-	-		0.12121	0.00785	
Threepence	- 21.81818	1.41379	-	-		0.09090	0.00589	
Twopence	- 14.54545	0.94253	-	-		0.06060	0.00392	
Penny	- 7.27272	0.47126	-	-		0.03030	0.00196	
<b>BRONZE:</b>								
Penny	- 145.83833	9.44984	-	-	Mixed metal, copper, tin, and zinc.	2.91666	0.18899	None.
Halfpenny	- 87.50000	5.66990	-	-		1.75000	0.11389	
Farthing	- 43.75000	2.83495	-	-		0.87500	0.05669	



The following table, partly from Kelly's "Universal Cambist," shows the alterations that have been made in English gold and silver coins, from A.D. 1066, with respect to weight and fineness, and the comparative value of gold and silver at the different dates:—

Date.	Reign.	Silver.				Gold.			Comparative Value of Fine Gold and Silver.
		Fineness of Silver Coins		Pound Troy of such Silver coined into	Fineness of Gold Coins.		Pound Troy of such Gold coined into		
		oz. ds.	§		s. d.	car. grs.		§	
1066	William I.	11	2 1	1 4					
1280	Edward I.	11	2 1	1 4					
1344	Edward III.	11	2 1	1 6 23	3 ½	14 0 10	1	to 12-584	
1349	Edward III.	11	2 1	3 0 23	3 ½	14 18 8 1		" 11-571	
1356	Edward III.	11	2 1	6 8 23	3 ½	16 0 0 1		" 11-158	
1421	Henry V.	11	2 1	12 0 23	3 ½	17 16 0 1		" 10-331	
1464	Edward IV.	11	2 2	0 0 23	3 ½	22 4 6 1		" 10-331	
1465	Edward IV.	11	2 2	0 0 23	3 ½	24 0 0 1		" 11-158	
1470	Henry VI.	11	2 2	0 0 23	3 ½	24 0 0 1		" 11-158	
1482	Edward IV.	11	2 2	0 0		24 0 0 1		" 11-158	
1509	Henry VIII.	11	2 2	0 0		24 0 0 1		" 11-158	
1527	Henry VIII.	11	2 2	2 8 22	0	24 0 0 1		" 11-468	
1543	Henry VIII.	10	0 2	8 0 23	0	28 16 0 1		" 10-434	
1545	Henry VIII.	6	0 2	8 0 22	0	30 0 0 1		" 6-818	
1546	Henry VIII.	4	0 2	8 0 20	0	30 0 0 1		" 5-000	
1547	Edward VI.	4	0 2	8 0 20	0	30 0 0 1		" 5-000	
1549	Edward VI.	6	0 8	12 0 22	0	34 0 0 1		" 5-151	
1551	Edward VI.	5	0 3	12 0 23	3 ½	34 0 0 1		" 11-000	
1552	Edward VI.	11	1 3	0 0 22	0	36 0 0 1		" 11-050	
1553	Mary	11	0 3	0 0 23	3 ½	36 0 0 1		" 11-057	
1560	Elizabeth	11	2 3	0 0 22	0	36 0 0 1		" 11-100	
1600	Elizabeth	11	2 3	2 0 23	3 ½	36 10 0 1		" 10-904	
1604	James I.	11	2 3	2 0 22	0	33 10 0 1		" 12-109	
1626	Charles I.	11	2 3	2 0 22	0	41 0 0 1		" 13-346	
1666	Charles II.	11	2 3	2 0 22	0	44 10 0 1		" 14-485	
1717	George I.	11	2 3	2 0 22	0	46 14 6 1		" 15-209	
1816	George III.	11	2 3	6 0 22	0	46 14 6 1		" 14-287	
1821	George IV.	11	2 3	6 0 22	0	46 14 6 1		" 14-287	
1872	Victoria	11	2 3	6 0 22	0	46 14 6 1		" 14-287	

From the above table it is easy to calculate the weight of 20s. in tale of silver, and of 20s. in tale of gold at any particular date.

The following coins, no longer in circulation, are sometimes mentioned in books and old documents:—

Name of Coin.	Value.	Date.	Reign.	Remarks.
<b>GOLD COINS:—</b>				
	£ s. d.			
Byzant .....	0 10 0	9—14 centuries		Coined by these Emperors at Constantinople; these circulated freely in England, from the 9th to the 14th century, before the introduction of British gold coins. So-called because they were originally struck at Florence, they contained $\frac{1}{4}$ of an ounce of gold, and were of the same value as the Byzants. The gold coins struck by Henry III. were 24 carat fine or pure gold. The Pennie weighed two silver pence and passed for 20 pence. Edward III. changed the standard of fineness to 38 carats, 84 grains fine. Henry VIII. reduced the standard to 30 carats fine, but the gold crowns coined in Henry VIII.'s reign were 22 carats fine, and this standard called "crown gold" was finally adopted as the sole standard, and has remained so ever since.
Florence .....	0 10 0	13 Century		
Pennie .....	0 1 8	1267	Henry III.	
Mark .....	0 13 4			
Noble .....	0 6 8	1344	Edward III.	The Ryal was a gold noble struck with a design representing the King standing in a ship and armed with a sword and shield. The design was altered to "George and the Dragon" in 1333 when the coin was called the "George Noble." The Angel or Angelet, gold coins first struck in Paris during the English occupation, were so-called from the design, an angel supporting the arms of France and England.
Half-Noble .....	0 3 4	"	"	
Quarter-Noble .....	0 1 8	"	"	
Ryal or Rose .....	0 10 0	1465	Edward IV.	
Noble .....	0 10 0			
Angel .....	0 6 8	"	"	The Angel or Angelet, gold coins first struck in Paris during the English occupation, were so-called from the design, an angel supporting the arms of France and England.
" .....	0 7 4	1536	"	
" .....	0 8 0	1544	"	Mary
" .....	0 10 0	1554	"	
Angelet (or Angelet) .....	0 5 0			The Laurel of James I. was adopted by Charles II., and was subsequently called a guinea. The Jacobus was also called a unilite or broad piece.
Double-ryal .....	1 0 0	1489	Henry VII.	
Crown .....	1 0 0	1537	Henry III.	
Laurel .....	1 0 0	1603	James I.	
Jacobus .....	1 5 0	"	"	
Jacobus (or Carolus) .....	1 8 0	"	"	

Guinea	.....	1	0	0	1688	The Guinea originally issued at 20s. rose in value in 1685 to £1 10s. In 1688 its value was £1 6s. In 1667 it was £1 2s. In 1717 its value was fixed at £1 1s. sterling.
"	.....	1	10	0	1686	
"	.....	1	5	0	1696	
"	.....	1	2	0	1697	
"	.....	1	2	0	1717	At different periods certain foreign gold coins were allowed to pass current at specified rates; thus the Portuguese moidore was allowed to circulate at 27s, and the Joannese at 86s.
Half Guinea	.....					At the accession of William I. the pound in tale of silver coins was equal to the pound weight of standard silver, i.e. the Saxon, or Moneyer's or tower pound, or 16-16th lb. troy. The pound in tale was divided into 20s., and each shilling into 12 pence or sterlings, each weighing 24 grains. This system of coinage which was after the plan of Charlemagne, and was supposed to have originated with the Romans, was continued without alteration till the 38th year of Edward I. Up to that date the penny had been the highest denomination of silver coin; half-pence (or mailles) and farthings having been introduced by Henry I.
Third of a Guinea	.....	0	7	0	1717	
Guinea	.....	0	7	0		
Quarter of a Guinea	.....	0	5	8	1718	Henry VIII. caused the pound of silver, one-third fine, to be coined into 49 testoons in 1547. Edward VI. caused the pound of silver, one-fourth fine, to be coined into 72 testoons; Charles II. caused it to be coined into 63 shillings, and at this rate it continued till the year 1816, when the rate was fixed at 66 shillings, the present rate.
Three Pound Piece	.....	3	0	0		
SILVER COINS :						
Testoon (or Shilling)	.....				1504	Henry VIII. caused the pound of silver, one-third fine, to be coined into 49 testoons in 1547. Edward VI. caused the pound of silver, one-fourth fine, to be coined into 72 testoons; Charles II. caused it to be coined into 63 shillings, and at this rate it continued till the year 1816, when the rate was fixed at 66 shillings, the present rate.
"	.....				1547-1553	
Testor	.....				1567-1608	Also Spanish dollars stamped for the purposes were put into circulation by the Bank of England and received back at their issue rate.
Halfpenny	.....					
Farthing	.....					
Two Mark Piece	.....					
Balance Mark	.....				James VI. of Scotland.	
Half Mark	.....				"	
Thistle Mark	.....				"	
Half Mark	.....				"	

**IRELAND.**

In the old Irish currency the denominations of moneys were the same as those of the United Kingdom already given, viz., Pounds, Shillings, and Pence, but British sterling is greater in intrinsic value by a twelfth part than the old Irish money, thus :—

<i>Irish value.</i>	<i>Systematic name.</i>	<i>British value.</i>
		£ s. d.
4 Farthings	= 1 Penny	= 0 0 $\frac{1}{4}$
12 Pence	= 1 Shilling	= 0 0 $11\frac{1}{12}$
20 Shillings	= 1 Pound	= 0 18 $5\frac{1}{4}$
21 Shillings	= 1 Guinea	= 0 19 $4\frac{1}{4}$

The British Shilling is equivalent to 1s. 1d. Irish; the British Pound Sterling to £1 1s. 8d. Irish; and £100 British to £108 6s. 8d., or £108 $\frac{1}{2}$ .

To convert Irish money into British Sterling, multiply by 12 and divide by 18.

To convert British Sterling into Irish Currency, multiply by 18 and divide by 12.

**COMPARATIVE TABLE OF BRITISH STERLING AND IRISH CURRENCIES.**

<i>British.</i>			<i>Irish.</i>			<i>British.</i>			<i>Irish.</i>							
£	s.	d.	£	s.	d.	Gs.	£	s.	d.	Gs.	£	s.	d.			
0	0	$\frac{1}{4}$	=	0	0	1	..	3	9	$2\frac{1}{4}$	=	..	0	10	0	
0	0	1	=	0	0	$1\frac{1}{2}$	..	0	9	$8\frac{1}{4}$	=	$\frac{1}{2}$	0	10	6	
0	0	8	=	0	0	$8\frac{1}{2}$	..	0	10	0	=	..	0	10	10	
0	0	4	=	0	0	$4\frac{1}{2}$	$\frac{1}{2}$	=	0	10	6	=	..	0	$11\frac{1}{4}$	
0	0	$5\frac{1}{4}$	=	0	0	6	..	0	18	$5\frac{1}{4}$	=	..	1	0	0	
0	0	6	=	0	0	$6\frac{1}{2}$	..	0	19	$4\frac{1}{4}$	=	1	1	0	0	
0	0	9	=	0	0	$9\frac{1}{2}$	..	1	0	0	=	..	1	1	8	
0	0	$11\frac{1}{4}$	=	0	1	0	1	=	1	1	0	=	..	1	2	9
0	1	0	=	0	1	1	..	4	12	$8\frac{1}{4}$	=	..	5	0	0	
0	2	0	=	0	2	2	..	4	16	$11\frac{1}{4}$	=	5	5	0	0	
0	2	$8\frac{1}{4}$	=	0	2	6	..	5	0	0	=	..	5	8	4	
0	2	6	=	0	2	$8\frac{1}{2}$	5	5	5	0	=	..	5	18	9	
0	4	$7\frac{1}{4}$	=	0	5	0	..	9	18	$10\frac{1}{4}$	=	10	10	10	0	
0	5	0	=	0	5	5	10	10	10	0	=	..	11	7	6	
0	6	$11\frac{1}{4}$	=	0	7	6	..	92	6	$1\frac{1}{4}$	=	..	100	0	0	
0	7	6	=	0	8	$1\frac{1}{2}$	..	96	18	$5\frac{1}{4}$	=	100	105	0	0	
							..	100	0	0	=	..	108	6	8	
							100	=	105	0	0	=	..	118	15	0

**THE CHANNEL ISLANDS.**

viz.,

**GUERNSEY, JERSEY, ALDERNEY, AND SARK.**

The denominations of money are *Pounds, Shillings, and Pence Channel Island Currency*. £1 sterling is reckoned equal to £1 1s. 8d. Channel Island Currency.

## FRANCE.

<i>French value.</i>	<i>Systematic name.</i>	<i>English value.</i>
100 Centimes.	1 Centime	18 d.
= 1 Franc	=	9 d.

In France silver is the legal standard of value but the adoption of gold as a single standard was recommended in July 1870 by the "Conseil Supérieur du Commerce." The value of the *Franc* in silver is equal to 9·884d. sterling, and 25 francs 57·2 centimes are the equivalent value in silver of £1 sterling. The value of the Franc in gold is equal to 9·516d. sterling, and 25 francs 23½ centimes are the equivalent value in gold of £1 sterling.

The gold coins are pieces of 100, 50, 25, 20, 10, and 5 francs. The silver coins are pieces of 5, 2, and 1 franc, and the ½ franc and the 20 centime piece.

The bronze coins are pieces of 10, 5, 2, and 1 centimes, which weigh respectively 10, 5, 2, and 1 grammes.

The bronze coins in most general use are the 10 and 5 centime pieces. The 2 centime piece is seldom met with, and the 1 centime piece is still more uncommon. The Bank Notes are for 50, 100, 500, 1000 francs.

The copper coinage of France is  $\frac{2}{100}$ ths fine: it is composed of 95 parts of pure copper, 4 of tin, and 1 of zinc

The following table shows the weight, fineness, and English value of French coins:—

Denomination of Coin.	Full weight in Grammes.	Standard Fineness in thousandth parts.	Diameter in Millimetres.	English value at 25 Francs 29 Centimes to £1.
<b>GOLD:—</b>				£ s. d.
100 Francs	82258·06	900	85	8 19 4½
50 "	16129·08	"	28	1 19 8
25 "	8064·515	"	"	0 19 10
20 "	6451·61	"	21	0 15 10½
10 "	3225·80	"	19	0 7 11½
5 "	1612·90	"	17	0 8 11½
<b>SILVER:—</b>				
5 Francs	25	900	87	0 8 11½
2 "	10	835	27	0 1 7
1 "	5	"	23	0 0 9½
50 Centimes	2·50	"	18	0 0 4½
20 "	1	"	16	0 0 2
<b>BRONZE:—</b>				
10 Centimes		950		0 0 1
5 "		"		0 0 ½
2 "		"		0 0 ¼
1 "		"		0 0 ⅛

The allowance of variation in weight for the gold coins of 100 and 50 francs is one part in 1000, for the 20 and 10 franc pieces it is 2 in 1000, and for the 5 franc gold piece it is 3 in 1000. The allowance from standard purity for all the gold coins is 2 parts in 1000. In regard to the silver coins the allowance from standard weight is for the 5 franc piece 3 parts in 1000, for the 1 and 2 franc pieces 5 parts in 1000; for the half franc pieces 7 parts in 1000; and for the 20 centime pieces 10 parts in 1000. The allowance from standard purity for the 5 franc pieces is 2 parts in 1000 and for all the other silver pieces it is 3 parts in 1000.

The denominations of money used in accounts prior to 1795 were *livres*, *sous* and *deniers* (12 deniers = 1 sou, 20 sous = 1 livre), and 80 francs were generally considered equal to 81 livres; but by a decree in 1810 45 livres were declared equal to 47 francs 20 centimes, and the pieces of 24, 6, and 3 livres in like proportion. The old gold coins were the Louis of 24, and the double Louis of 48 livres. The silver coins were the Ecu of 6 livres and the half and quarter Ecu pieces.

FRENCH VALUE OF ENGLISH MONEY, AT 25 FRANCS 20 CENTIMES  
FOR £1 STERLING:—

English.	French.	English.	French.
¼d.	= 2½ centimes	2s.	= 2 francs 52 centimes
½d.	= 5½ "	2s. 6l.	= 8 " 15 "
1d.	= 10½ "	5s.	= 6 " 30 "
3l.	= 81½ "	10s.	= 12 " 60 "
4d.	= 42 "	£1	= 25 " 20 "
6d.	= 63 "	£5	= 126 " "
1s.	= 1 franc 26 centimes	£10	= 252 " "

## RUSSIA.

Paper money is the chief medium of payment and standard of value, and gold and silver coins are at a premium, and except the 20, 15, 10, 5 copeck pieces, are rarely met with. The paper rouble is worth about 2s. 6d. sterling; any sum in paper rubles may be converted into pounds sterling by division by 8.

Russian value.	Systematic Name.	English value
	1 Copeck	= 38d.
100 Copecks	= 1 Silver Rouble	= 8s. 2d.

### GOLD COINS.

The gold coins are the *imperial* of 10 rubles, the *half-imperial*, and the *three-ruble piece*. There is also a three-ruble piece in Platina.

The silver coins are the *ruble*, half-ruble, and the 25, 20, 15, 10, and 5 copeck pieces. (The 5-copeck piece is no longer minted.)

COPPER COINS.

The copper coins are pieces of 5, 3, 2, 1,  $\frac{1}{2}$ , and  $\frac{1}{4}$  copeck pieces.

BANK NOTES.

The bank notes are for 1, 3, 5, 10, 20, 25, 50, 100, 1,000, and 2,000 rubles.

The provinces of the Caucasus and Georgia have a special silver coinage, namely, the double-abbas = 40 copecks, the abbas = 20 copecks, the half-abbas = 10 copecks, and the shaur = 5 copecks.

Table showing the weight, fineness, and English value of the Russian coinage.

Denomination of Coins.	Standard of Fineness.	Weight of Pure Metal.			English value	
		Full Weight of Coin.	Weight of Pure Metal.	Weight of Alloy.	£	s. d.
<b>GOLD COINS.</b>						
Imperial (10 rubles) .. ..	$\frac{88}{100}$	294 $\frac{3}{10}$	270	24 $\frac{5}{10}$	1	11 8
Half-imperial (5 rubles) ..	"	147 $\frac{3}{10}$	135	12 $\frac{3}{10}$	0	15 10
Three-ruble piece .. ..	"	88 $\frac{4}{10}$	81	7 $\frac{4}{10}$	0	9 6
<b>SILVER COINS.</b>						
Ruble .. .. .	83 $\frac{1}{2}$	466 $\frac{11}{100}$	405	63 $\frac{1}{2}$	0	3 2
Half-ruble (Poltinnick) ..	96	233	202 $\frac{1}{2}$	30 $\frac{1}{2}$	0	1 7
Quarter ruble (Tchetwertak)	"	116 $\frac{1}{2}$	101 $\frac{1}{2}$	15 $\frac{1}{2}$	0	0 9 $\frac{1}{2}$
Dwongrivnick (20 copecks)	Inferior standard	93 $\frac{1}{2}$			0	0 7 $\frac{1}{2}$
Piatinnick (15 "		69 $\frac{9}{10}$			0	0 5 $\frac{7}{10}$
Griwnick (10 "		46 $\frac{3}{10}$			0	0 3 $\frac{3}{10}$
Pialachak (5 "		23 $\frac{3}{10}$			0	0 1 $\frac{3}{10}$
<b>COPPER COINS.</b>						
Five copecks .. .. .		576			0	0 1 $\frac{2}{10}$
Three copecks .. .. .		345 $\frac{3}{10}$			0	0 1.14
Two copecks .. .. .		230 $\frac{3}{10}$			0	0 .76
One copeck .. .. .		115 $\frac{3}{10}$			0	0 .38
Half-copeck (Deneshka) ..		57 $\frac{3}{10}$			0	0 .19
Quarter-copeck (Polushka)		28 $\frac{3}{10}$			0	0 .095

The standard of fineness of the gold coinage is the same as that of English gold coins; the standard of the silver coins, viz.. 88 $\frac{1}{2}$  in 96 parts, is inferior to that of the French 5-franc piece, which in Russian weight is 86 $\frac{1}{2}$  dolis fine, but superior to that of the Austrian and Prussian dollars, the Austrian being 80 and the Prussian 72 dolis fine.

Besides the above-mentioned coins there are some old coins, struck at different periods, which have not been withdrawn from circulation, namely, in silver the 1 $\frac{1}{2}$  *ruble piece*, containing 607 $\frac{1}{2}$  dolis of fine silver; and the 80 *copeck piece*, containing 121 $\frac{1}{2}$  dolis of pure silver; in copper, the *grivnick*, formerly equal to 10 copecks, now equal to 8 copecks; the *piatak*, formerly equal to 5 copecks, now equal to 1 $\frac{1}{2}$  copecks; and the *grosch*, formerly equal to 2 copecks, now equal to  $\frac{1}{2}$  copeck.

RUSSIAN VALUE OF ENGLISH MONEY AT 2s. 6d. PER PAPER RUBLE.

English.	Russian.	English.	Russian.
$\frac{1}{2}$ d. =	$\frac{1}{8}$ copecks.	2s. 6d. =	1 ruble.
1d. =	8 $\frac{1}{2}$ "	5s. =	2 "
8d. =	10 "	10s. =	4 "
4d. =	18 $\frac{1}{2}$ "	£1 =	8 "
6d. =	20 "	£5 =	40 "
1s. =	40 "	£10 =	80 "
2s. =	80 "		

RUSSIA.

FINLAND.

Finish value.	Systematic name.	English value.
	1 Penni	£ s. d. 0 0 $\frac{1}{100}$
100 Pennis =	1 Mark =	0 0 $\frac{1}{8}$

Silver is the chief standard of value, and there are no gold coins.

The silver coins are 2 marks, 1 mark, 50 pennis, and 25 pennis.

The copper coins are pieces of 10 pennis, 5 pennis, and 1 penni.

The Bank notes are for 100, 40, 20, 12, and 8 marks issued by the Finland State Bank; and for 100, 25, and 15 marks issued by the one private bank, "Forenings Banken i Finland."

Two different rates of exchange are quoted, one for buyers and another for sellers; thus 100 rubles (St. Petersburg) = 807 marks for buyers or 802 $\frac{1}{2}$  marks for sellers; £1 sterling (London) = 25.85 marks for buyers or 25.15 marks for sellers; 100 marcs banco (Hamburg) = 188.50 marks for buyers or 187



marks for sellers; 100 francs (Paris) = 100·60 marks for buyers or 99·85 marks for sellers; 100 florins (Amsterdam) = 211·80 for buyers or 209·70 marks for sellers; 100 riskdalers (Stockholm) = 142 marks for buyers or 141 for sellers.

The following table shows the standard of fineness, weight, and English value of the current coins.

Denomination of Coin.	Standard of Fineness in thousandth parts.		Weight in Grammes.	English value.		
	Pure Silver.	Alloy Copper.		£	s.	d.
<b>SILVER COINS:—</b>						
2 Marks	.868	.182	10·8658	0	1	7
1 Mark	.868	.182	5·1829	0	0	9½
50 Pennis	.750	.250	2·5495	0	0	4½
25 Pennis	.750	.250	1·2747	0	0	2½
<b>COPPER COINS:—</b>						
10 Pennis			12·7979	0	0	1
5 Pennis			6·3987	0	0	0½
1 Penni			1·2797	0	0	0½

## AUSTRIA.

<i>Austrian value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 New Kreuzer	= ⅓d.
100 New Kreuzers	= 1 New Florin	= 1s. 11½d.

In 1867 a Commission composed of persons from the two parts of the Empire sat in Vienna. This Commission recommended the introduction of gold as sole standard of value; and the recommendation was adopted in Article XII. of the Law of December 24th, 1867.—(*Collection of Laws of the Realm*, 1867, No. 4.)

Previously silver had been the standard precious metal used in the currency.

Paper money in Austria is the chief medium of payment.

The value of the paper florin fluctuates from day to day, but it may be taken at about 1s. 8d. sterling, or 12 florins to the £ sterling.

On the 31st July, 1867, Austria concluded a preliminary treaty with France, whereby the florin of the value of 2½ French francs was fixed as the fundamental unit of account and exchange. In that treaty it was provided that France should coin a piece of 25 francs equal to 10 florins.

The gold coins are pieces of 8 and 4 florins.

The silver coins are the 2 *Florin Pieces*, the *Florin*, the  $\frac{1}{2}$  *Florin*, the 20 and 10 *Kreutzer Pieces*.

The copper coins are the *Kreutzer*, and 4 *Kreutzer Pieces*.

The Bank Notes are for 10 *Kreutzers*, and 1, 5, 10, 100, and 1000 florins; they fluctuate in value as compared with gold and silver money, and are generally at a discount.

Between 1858 and 1867 the currency was based upon the 45 florin standard, or that in which a metric Pfund (500 grammes) of fine silver was coined into 45 New Florins.

Prior to 1858 Austrian money was based on the *Convention* or 20 *Florin standard*, or that in which a Cologne mark weight, Hamburg standard (3608 grains Troy) of fine silver was coined into 20 florins, in accordance with a Convention between Austria and Bavaria, concluded in 1753; when the 45 florin standard was introduced, 105 new florins were declared equivalent to 100 old ones.

The following table shows the weight, fineness, and English value of Austrian coins:—

Denomination of Coin.	Standard fineness in hundredth parts.	Full weight in grammes.	Weight of pure metal in grms.	Weight of alloy in grms.	English value.
<b>GOLD COINS:—</b>					£ s. d.
8 Florin piece	$\frac{900}{1000}$	6.45161	5.80644	.64516	0 15 10
4 Florin piece	"	3.22580	2.90322	.32258	0 7 11
<b>SILVER COINS:—</b>					
2 Florins ....	"	24.691	22.222	2.469	0 8 11 $\frac{1}{2}$
1 Florin ....	"	12.346	11.111	1.237	0 1 11 $\frac{1}{2}$
$\frac{1}{2}$ Florin ....	$\frac{800}{1000}$	5.842	2.778	2.564	0 0 5 $\frac{1}{2}$
20 Kreutzers	$\frac{800}{1000}$	2.666	1.333	1.333	0 0 4 $\frac{1}{2}$
10 " ..	$\frac{700}{1000}$	1.666	0.667	0.999	0 0 2 $\frac{1}{2}$
<b>COPPER COINS:—</b>					
4 Kreutzer ..					0 0 0 $\frac{1}{2}$
1 Kreutzer ..					0 0 0 $\frac{1}{4}$

The 8 florin piece is 21 millimetres in diameter, and the 4 florin piece 19; the pfund of 500 grammes of gold consisting

of  $\frac{2}{10}$ ths gold and  $\frac{1}{10}$ th copper is coined into  $77\frac{1}{2}$  pieces of eight florins and 155 pieces of 4 florins. On the left side of the Imperial Eagle on the reverse of the coin is shown the Austrian value—viz., 8 florins; and on the right side the French value—viz., 20 francs.

The following old coins, still in circulation, are received at the under-mentioned rates:—

		Sterling.			}	These are of the 45 florin standard, and were replaced by the 8 and 4 florin pieces in March, 1870.
GOLD COINS:—		florins.	kreutz.	£ s. d.		
Crown		— 13 $\frac{1}{2}$	0	= 1 7 0	}	These are of the 45 florin standard, and were replaced by the 8 and 4 florin pieces in March, 1870.
Half-crown		— 6 $\frac{2}{3}$	0	= 0 13 6		
The Ducat ( $4\frac{1}{2}$ florins) with anagio of from 6 to 10 Kreutzers)		— 4	70	= 0 9 2 $\frac{1}{2}$	}	This is of the old 20 florin or Convention standard.
SILVER COINS:—						
Double Thaler		— 3	0	= 0 5 11 $\frac{1}{2}$	}	These are coins of the 45 florin standard.
Thaler		— 1	50	= 0 2 11		
Crown of Brabant		— 2	30	= 0 4 5 $\frac{1}{2}$	}	These are of the old 20 florin or Convention standard.
The Convention Crown		— 4	10	= 0 4 1		
Florin of 60 Kreutzers		— 1	5	= 0 2 0 $\frac{1}{2}$		
The 20 Kreutzer piece (new coin)		— 0	35	= 0 0 8 $\frac{1}{2}$		
The 20 Kreutzer piece (old coin)		— 0	34	= 0 0 7 $\frac{1}{2}$		
The 10 Kreutzer piece		— 0	17	= 0 0 3 $\frac{3}{8}$		
The 6 Kreutzer piece		— 0	10	= 0 0 2 $\frac{1}{2}$		
The 5 Kreutzer piece		— 0	8 $\frac{1}{2}$	= 0 0 2 $\frac{1}{10}$		
The 3 Kreutzer piece		— 0	5	= 0 0 1 $\frac{1}{2}$		

VALUE OF ENGLISH MONEY AT 1s. 8d. FOR 1 AUSTRIAN FLORIN  
IN PAPER.

English.	Austrian Paper.	English.	Austrian Paper.
$\frac{1}{2}$ d. =	1 $\frac{1}{2}$ Kreutzers	2s. 6d. =	1 $\frac{1}{2}$ florins.
1d. =	5 "	5s. =	3 "
3d. =	15 $\frac{3}{4}$ "	10s. =	6 "
4d. =	20 "	£1 =	12 "
6d. =	30 "	£5 =	60 "
1s. =	60 "	£10 =	120 "
2s. =	1 fl. 20 "		

## GERMANY.

The present monetary system introduced by the law of December, 1871, established for the whole of Germany an uniform system of currency and accounts. The *Mark*, which is the basis of this system, is equivalent to a 10-groschen piece, or  $\frac{1}{3}$  of a North German Thaler: it is the tenth part of an Imperial gold coin—the ten-mark-piece—of which 139 $\frac{1}{2}$  pieces contain a Zollverein pound, that is, 500 grammes or 7716 Troy grains of pure gold. During the period of transition to the new system, the old silver coinage of North Germany, down to the 5-groschen piece, continues to be a legal tender in all commercial transactions, and a new gold coinage is declared a legal tender. This new monetary system, in which all accounts are now kept and reckonings made, is as follows:—

<i>German value.</i>	<i>Systematic name.</i>	<i>English value.</i>
		£ s. d.
10 Pfennigs*	= 1 Groschen	= 0 0 1.175
10 Groschen or 100 Pfennigs }	= 1 Mark	= 0 0 11.¼

This system introduces a gold standard into Germany where that standard, the only one suitable for large payments, was much needed, and where previously there was but a very small quantity of gold in circulation. It makes gold a legal tender and standard of value—a money instead of an article of commerce—and it extends to the whole of Germany one uniform system of currency and accounts. It adopts a common gold coin for the various States of the Empire, whose silver coinage is so different, and, by dropping the Thaler denomination for the gold coinage and giving it a new name and subdivisions, it tends to harmonise and unite the systems of North Germany, the Hanse Towns, and South Germany. Under the old system the smallest coin in North Germany was the Pfennig, of which there were 120 in a Mark, while in South Germany the equivalent of a Mark was 35 Kreuzers or 140 Pfennigs. In the new system the smallest coin for all Germany is the one-hundredth part of a Mark, and so the value of the smallest coin is increased in the new system by 20 per cent. for North Germany, and by 40 per cent. for South Germany.

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\* In Bavaria a subdivision of the Pfennig into two half-Pfennigs may be made if necessary.

## GOLD COINS.

	North German Value.		South German Value.		Lübeck or Hamburg customary Value.		Bremen Value Gold reckoning.	English Value.
	Thalers.	Sb. gahn.	Florins.	Kreuzers.	Marks.	Schillings.	Thalers.	
10 Marks . . . .	3	10	5	50	3	5½	3½	£ s. d.
20 „	6	20	11	40	16	10½	6½	0 9 9½ 0 19 7

A Zollverein pound of pure gold is coined into 139½ pieces of 10 Marks; or 69½ pieces of 20 Marks. The mixture of pure gold and alloy in the coins is in the proportion of 900 parts of gold to 100 parts of copper. Accordingly, 125.55 pieces of 10 Marks or 62.775 pieces of 20 Marks weigh one Zollverein pound.

The Imperial gold coins bear upon one side the Imperial Eagle, with the inscription, "Deutsches Reich," and a statement of the value in Marks, and the year of the coinage; on the other side, the likeness of the sovereign princes, or the symbols of sovereignty of the Free Towns, with a corresponding device and the stamp of the Mint.

The difference more or less of the pieces as issued from the Mint must not exceed in weight 2½ thousandth-parts, and, in fineness, 2 thousandth-parts.

Imperial gold coins that are not deficient more than *five-thousandth*-parts from the nominal weight (Passirgewicht) are accepted as full value in all payments. Imperial gold coins which, from long circulation have become lighter than the *pass weight*, are withdrawn, and replaced at the expense of the Empire.

The coinage of other gold coins besides the 10 and 20 Mark pieces, as well as of large silver coins (except memorial medals) is prohibited.

All payments which, under the old system of currency, would be made in silver money of Thaler currency, of South German currency, of Lübeck or Hamburg customary currency, or in

Thalers of the Bremen gold, reckoning may be made in Imperial gold coins reckoned at the following rates, viz. :—

10 Mark piece =  $8\frac{1}{2}$  Thalers, or 5 Florins 50 Kreuzers of South German currency, or 8 Marks  $5\frac{1}{2}$  Schillings of the Lübeck and Hamburg currency, or  $3\frac{2}{3}$  Thalers of Bremen gold reckoning.

20 Mark piece =  $6\frac{1}{2}$  Thalers, or 11 Florins 40 Kreuzers of South German currency, or 16 Marks  $10\frac{1}{2}$  Schillings, of Lübeck and Hamburg currency, or  $6\frac{2}{3}$  Thalers of Bremen gold reckoning.

#### SYSTEM OF CURRENCY BEFORE 1872.

Formerly silver was the standard of value, and the monetary system was based on the Zöllpfund or Münzpfund, that is, 500 grammes, or 7,716 Troy grains of fine silver.

For North Germany the Zöllpfund of fine silver was coined into 30 Thalers: this was called *North German value*, or *Thirty Thaler basis*.

For South Germany the Zöllpfund of fine silver was coined into  $52\frac{1}{2}$  Florins: this was called *South German value*, or *Fifty-two-and-a-half Florin basis*.

A North German Thaler was equal to  $1\frac{1}{2}$  Austrian Florins, or  $1\frac{1}{2}$  South German Florins.

There were pieces of  $\frac{1}{2}$  and  $\frac{1}{4}$  Thaler (*North German value*),  $\frac{1}{2}$  and  $\frac{1}{4}$  Florin (*South German value*), and  $\frac{1}{2}$  and  $\frac{1}{4}$  Florin (*Austrian value*).

In North Germany accounts were kept as follows :—

	s.	d.
12 Pfennig	= 1	Silbergroschen = 1 $1\frac{1}{2}$ English.
30 Silbergroschen	= 1	Thaler = 3 0 ,,

In South Germany accounts were kept as follows :—

	s.	d.
4 Pfennig	= 1	Kreuzer = 0 $\frac{1}{2}$
60 Kreuzers	= 1	Florin = 1 8

The following coins were current in Germany previous to the passing of the Act of December, 1871; and it must be remembered that under this Act the silver coins of North

Germany, down to the 5 Silbergroschen piece, remain a legal tender in all commercial transactions:—

Denomination of coin.	North German value.			South German value.			English value.		
	Th.	Sb.	gr. Pf.	Fl.	Kr.	Pf.	£	s.	d.
<b>GOLD COINS:—</b>									
Frederic-d'or .. ..	5	20	0	9	55	0	0	16	6½
Double „ .. ..	11	10	0	19	50	0	1	13	0½
Half „ .. ..	2	25	0	4	57	2	0	8	3½
Union Crown .. ..	9	6	0	16	6	0	1	6	10
Half „ .. ..	4	18	0	8	3	0	0	13	5
Pistole (Denmark) ..	5	15	0	9	87	2	0	16	0½
1 Double Pistole ..	11	0	0	19	15	0	1	12	1½
10 Guilders (*Dutch)	.....	.....	.....	9	44	0	0	16	2½
5 „ „ .. ..	.....	.....	.....	4	52	0	0	8	1½
20 Francs (French)	.....	.....	.....	9	25	0	0	15	10
1 Ducat .. ..	.....	.....	.....	5	33	0	0	9	2½
Sovereign (English)	.....	.....	.....	11	46	0	1	0	0
<b>SILVER COINS:—</b>									
1 Thaler .. ..	.....	.....	.....	1	45	0	0	2	11
Double Thaler .. ..	.....	.....	.....	3	30	0	0	5	10
10 Silbergroschen ..	.....	.....	.....	0	35	0	0	0	11½
5 „ .. ..	.....	.....	.....	0	17	2	0	0	5½
2½ „ .. ..	.....	.....	.....	0	8	3	0	0	2½
1 „ .. ..	.....	.....	.....	0	3	2	0	0	1½
½ „ .. ..	.....	.....	.....	0	1	3	0	0	0½
Florin .. ..	0	17	1½	1	0	0	0	1	8
1-Half Florin .. ..	0	8	6½	0	30	0	0	0	10
Quarter „ .. ..	0	4	3½	0	15	0	0	0	5
6 Kreuzer .. ..	0	1	8½	0	6	0	0	0	2
3 „ .. ..	0	0	10½	0	3	0	0	0	1
1 „ .. ..	0	0	3½	0	1	0	0	0	0½
<b>COPPER COINS:—</b>									
4 Pfennige .. ..	.....	.....	.....	.....	.....	.....	0	0	0⅓
3 „ .. ..	.....	.....	.....	.....	.....	.....	0	0	0⅔
2 „ .. ..	.....	.....	.....	.....	.....	.....	0	0	0⅓
1 „ .. ..	.....	.....	.....	.....	.....	.....	0	0	0⅓

English money exchanged into Imperial German money and North and South German money, at 11½d. for 1 mark, 2s. 11d. for 1 Thaler, and 1s. 8d. for 1 Florin.

\* Although gold coins are no longer issued from the Dutch Mint, they have not altogether disappeared from European circulation.

£	s.	d.	Mks.	Gros.	Pf.	Thrs.	Sbgn.	Pf.	Flors.	Kreuzs.
		1			8½			10½		8
		8			2 5½		2	6½		9
		4			3 4		8	5½		12
		6			5 1		5	1½		18
	1	0	1	0	2		10	3½		86
	2	0	2	0	4		20	6½	1	12
	2	6	2	5	5		25	8½	1	80
	5	0	5	1	0	1	21	5½	8	0
	10	0	10	2	1	8	12	10½	6	0
	1	0	0	20	4 2	6	25	8½	12	0
	5	0	0	102	1 2	84	8	6½	60	0
	10	0	0	204	2 5	68	17	1½	120	0
	100	0	0	2042	5 5	685	20	6½	1200	0

### HAMBURG.

The monetary system is that of the German Empire. The old monetary system, in which silver was the standard, was as follows:—

12 Pfennig = 1 Schilling = ¼d. English.  
 16 Schillinges = 1 Mark = 1s. ¼d. „

The money had a twofold valuation, namely, *Currency* and *Bank value*.

*Currency value* referred to the coins in actual circulation.

*Bank value* referred to the credits in the bank books. Those credits were represented by silver bullion of the fineness of ⅔ths deposited in the bank.

In *currency value* the Cologne Mark weight (Hamburg standard), viz., 8078 grains Troy of pure silver was coined till 1856 into 84 Marks, and after that date into 85 Marks.

The silver deposited at the bank was received at the nominal rate of 442 Schillinges and issued at 444 Schillinges, or 27½ Marks *Banco* for the Cologne Mark weight (8608 grains Troy) of pure Silver. Taking the proportion of silver to gold as 15½ to 1, a mark, *Bank value* was equal to 1s. 5·82d. sterling; and a Mark *Currency value*, was equal to 1s. 2·18d. sterling;

The gold coins were the *Louis d'or* = 15 or 16 Marks, the *Pistole*, and the *Ducat*. The *Pistole* = 10 Marks, 14 Schillinges (*Bank value*) and worth about 16s. 2d. sterling. The *Ducat* contained 979 parts out of 1000 of pure gold, was equal to 6 Marks, 4 Schillinges. *Bank value*, or 100⅓ Schillinges *currency value*, and was worth about 9s. 2¼d. sterling.

The silver coins were the *Double Thaler* equal to 5 marks (*currency value*) and worth 5s. 10·64d. sterling; the *Thaler* of 2½ marks, worth 2s. 11·82d. sterling; the *Mark*, worth 1s. 2¼d. sterling; the 8 *Schilling Piece*, worth 7¼d. sterling; the



4 *Schilling Piece*, worth 8½d. sterling; the 2 *Schilling Piece*, worth 1¾d. sterling, the *Schilling*, worth ¾d. sterling; the ½ *Schilling*, or *Sechaling*, worth ¾d. sterling; and the ¼ *Schilling* or *Dreiling*, worth ¼ of a farthing sterling. The *Mark* contained 750 parts by weight out of 1000 pure silver, the 8 schilling piece contained 625, the 4 schilling piece 562½, the 2 *Schilling Piece* 437½, and the 1 schilling piece 250 of such parts.

The difference between the *Bank value* and the *Currency value* was called the *Bank Agio*, and is perpetually varying with the price of pure silver.

### BREMEN.

The monetary system is that of the German Empire. The old system was as follows:—

5 Schwaron	=	1 Groot	=	½½d. English.
75 Grootes	=	1 Rix-dollar	=	8s. 8½d. „

The Thaler or Rixdollar was purely a money of account, and had no representative in the coinage. It was equal to ¼th of the *Louis-d'or* or *Pistole* of Hanover, Brunswick, Hesse, and Denmark.

The silver coins were the ½ Thaler, of 86 grootes, worth about 1s. 7d. sterling; the ¼ Thaler of 12 Grootes, worth 6½d. sterling; the 6 Groot Piece, worth 3½d.; the Groot, worth about ¼d. sterling.

The gold coins in circulation were chiefly Danish, Hanoverian, and other *Pistoles*, of 5 Thalers, and Ducats of 2½ Thalers at an agio or premium of a variable per centage. The English Sovereign passed current at about 6 Thalers 10 to 12 Grootes

The copper coins were pieces of 2½ and 1 Schwaron.

### LÜBECK.

The monetary system is that of the German Empire. The old system of Lübeck currency was as follows:—

12 Pfennig	=	1 Schilling	=	¾d. English.
16 Schillinges	=	1 Mark	=	1s. 1½d. „
3 Marks	=	1 Thaler	=	8s. 4d. „

The old gold coins were the Portuguese or 10 Ducat piece = 78 Marks 12 Schillinges, and the 5, 2, ½, and ¼ ducat pieces in like proportion. 67 ducats were to weigh a Cologne Mark weight of gold 23 carats, 6 grains fine.

The silver coins were the Specie Thaler at 3 Marks 12 Schillinges Currency = about 4s. 2d. sterling; and the currency

Rix-dollars or Thalers at 8 Marks = 8s. 4d. sterling; pieces of 1, 2, 4, and 8 Schillinges; Sechslings at 6 Pfenings and Dreilings at 3 Pfennigs Currency.

## SILVER COINS.

The Cologne Mark weight of fine silver (3608 grains, Troy), prior to 1856 was coined into 11½ Thalers or 84 Marks of Lübeck Currency, and since that date into 35 Marks, a Lübeck Mark is equal to 60 *Austrian* New Kreuzers, to 12 *Prussian* Silber Groschens, to 42 *South Germans* Kreuzers, or to 1s. 1½d. sterling.

The coins below a Schilling consisted of either Billon or Copper, but no one was obliged to receive in payment more than 1 Thaler's worth of such coin.

## SPAIN.

<i>Spanish value.</i>	<i>Systematic name.</i>	=	<i>English value.</i>
			£ s. d.
	1 Centimo	=	0 0 $\frac{1}{100}$
100 Centimos	= 1 Peseta*	=	0 0 9½

The Gold coins are pieces of 100, 50, 25, 20, 10, and 5 Pesetas.

The Silver coins are pieces of 5, 2, 1 Pesetas, and of 25 and 20 Centimos.

The Bronze coins are pieces of 10, 5, 2, and 1 Centimos.

In the Gold coins the allowance for variations from (either over or under) the exact weight, is one-thousandth for the 100 peseta and 50 peseta, two-thousandths for the 20 peseta and 10 peseta, and three-thousandths for the 5 peseta piece; and the allowance for variation either over or under the standard of fineness, is two-thousandths.

In the Silver coins the variation of weight tolerated is for the 5 peseta piece three-thousandths, and the variation of fineness is two-thousandths: the variation of weight for the 2 and 1 peseta pieces is five-thousandths; for the 50 centimo piece and for the 20 centimo piece it is ten-thousandths. The variation of fineness for the 2 and 1 peseta, and for the 50 and 20 centimo pieces, is three thousandths.

In the Bronze coins the variation of weight tolerated, is 10-thousandths for the 10 and 5 centimo pieces, and 15-

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\* In virtue of a decree of the Cortes, dated 19th October, 1868, the Spanish money was recoinced, and a new Monetary System, as given above, was adopted, and became the only legal Monetary System of Spain and her Colonies from 31st December, 1870.

thousandths for the 2 and 1 centimo pieces. The variation from standard fineness is 10-thousandths for the 10 and 5 centimo pieces, and 5-thousandths for the 2 and 1 centimo pieces.

The following table shows the standard of fineness, the weight, and English value of the Spanish coins:—

Denomination of Coin.	Standard of fineness in thousandth parts.	Weight in grammes.	Diameter in Millimetres.	English value.
<b>GOLD COINS:—</b>				
100 Pesetas . . . .	900	32.25806	35	£ s. d. 8 19 2
50 " . . . .	"	16.12903	28	1 19 7
25 " . . . .	"	8.064515		0 19 .9½
20 " . . . .	"	6.45161	21	0 15 10
10 " . . . .	"	8.22580	19	0 7 11
5 " . . . .	"	1.61290	17	0 8 11½
<b>SILVER COINS:—</b>				
5 Pesetas . . . .	900	25	37	0 8 11½
2 " . . . .	835	10	27	0 1 7
1 " . . . .	"	5	23	0 0 9½
50 Centimos ..	"	2.50	18	0 0 4½
20 " . . . .	"	1.00	16	0 0 9.⅞
<b>BRONZE COINS:—</b>				
10 Centimos ..	950 Copper 40 Tin 10 Zinc	10	30	0 0 1
5 " ..		5	25	0 0 0½
2 " ..		2	20	0 0 0½
1 " ..		1	15	0 0 0.⅞

OLD MONETARY SYSTEM OF SPAIN.

The old monetary system was based on the *Real-Vellon* and *Hard Dollar*, and accounts were generally kept in Reals divided into 84 Maravedis or 100 Centimos, but in Alicant, Arragon, Barcelona, and Valencia, they were kept in *Libras* divided into 20 *Sueldos*, and each *Sueldo* into 12 *Dineros*.

There were four principal classes of the *Real*, namely, the *Real-Vellon*, the *Real-New-Plate*, the *Real-Old-Plate*, and the *Real-Mexican-Plate*.

The *Real-Vellon* was both a money of account and a coin; it was the 20th part of a Silver Hard Dollar, it was also the 20th part of a Gold Dollar (*Coronilla*), and was equal to 2½d. sterling.

The *Real-New-Plate* was a coin, but not a money of account, it was the  $\frac{1}{10}$ th part of a Hard-Dollar, and was equal to 5d. sterling.

The *Real-Old-Plate* was a money of account, and a denomination used generally in exchange, but not a coin, it was  $\frac{1}{5}$ ths of a Hard Dollar, and was equal to  $4\frac{1}{10}$ d. sterling. When the term *Plate* only was used, *Old Plate* was meant.

The *Real-Mexican-Plate* was the chief money of account in Spanish America, but not a coin; it was the  $\frac{1}{4}$ th part of a Hard-Dollar, and was equal to 6 $\frac{1}{2}$ d. sterling.

1 Real-Mexican-Plate = 2 $\frac{1}{2}$  Reals-Vellon = 1 $\frac{1}{2}$  New-Real-Plate = 1 $\frac{1}{4}$  Reals-Old-Plate.

The Doubloon de Plata Sencilla was equal to 60 Reals-Vellon or 12s. 6d. sterling; the Peso-Sencillo to 15 Reals-Vellon; and the Ducado de Vellon to 11 Reals-Vellon.

Besides the above-mentioned principal classes of Reals, there were five classes of Reals that were moneys of account and exchange, but not coins, namely, the Real of Alicant, equal to  $\frac{1}{11}$  of a Hard Dollar, or 8.8554d. sterling; the Real of Catalonia, equal to  $\frac{1}{11}$  of a Hard Dollar, or 4.0895d. sterling; the Real Ardite of Catalonia, equal to  $\frac{1}{11}$  of a Hard Dollar, or 2.6890d. sterling; the Real of Valencia, equal to  $\frac{1}{11}$  of a Hard Dollar, or 2.8285d. sterling; and the Real of Gibraltar, equal to  $\frac{1}{11}$  of a Hard Dollar, or 4 $\frac{1}{2}$ d. sterling.

The Libra of Alicant, Cadiz, and Valencia, was the same as the Dollar of Plate or exchange, and was equal to 37.647d. sterling, or  $\frac{3}{4}$  of a Hard Dollar; the Libra of Catalonia was equal to 26 $\frac{1}{2}$ d. sterling, or  $\frac{1}{4}$  of a Hard Dollar; the Libra of Arragon was equal to 47 $\frac{1}{2}$ d. sterling, or  $\frac{1}{2}$  of a Hard Dollar; the Libre of Navarre was equal to 7.842d. sterling, or  $\frac{1}{11}$  of a Hard Dollar.

The moneys of exchange were the Peso de Plata or Piastre (Dollar) of exchange equal to 272 Maravedis Old Plate, or 512 Maravedis-Vellon; the Doubloon de Plata or Pistole of exchange equal to 82 Reals, or 1088 Maravedis Old Plate, or 16 Reals 8 Maravedis-Vellon, or 40 $\frac{1}{2}$ d. sterling; the Ducado de Plata or Ducat of exchange, equal to 11 Reals 1 Maravedis, or 20 Reals 25 $\frac{1}{2}$  Maravedis-Vellon, or 51 $\frac{1}{2}$ d. sterling.

#### OLD MONEYS OF ACCOUNT.

Spanish value.	Systematic name.	English value.
	1 Centimo =	$\frac{1}{10}$ d.
100 Centimos, or } 8 $\frac{1}{2}$ Maravedis	= 1 Real-Vellon =	2 $\frac{1}{2}$ d.
10 Reals-Vellon	= 1 Escudo* =	2s. 1d.

\* In 1805 the Escudo was made the highest unit of account. Previously the Real and the Centimo had been the only denominations used in keeping accounts.

The Gold coins were the (a) *Onza*, or *Doubloon* of 320 Reals worth 66s. 8d. sterling; (b) the *Half-Onza* of 160 Reals, worth 33s. 4d. sterling; the *Isabel* of 100 Reals, worth 20s. 10d. sterling; (c) the *Quarter-Onza* of 80 Reals, worth 16s. 8d. sterling; (d) the *One-Eighth Onza* of 40 Reals, worth 8s. 4d. sterling; the  $21 \frac{1}{2}$  *Real-Piece*, worth 4s. 5d. sterling; and (e) the *Dollar* of 20 Reals, worth 4s. 2d. sterling.

The Silver coins were the *Dollar* (*duro*) of 20 Reals-Vellon worth 4s. 2d. sterling; the *Escudo* of 10 Reals, worth 2s. 1d. sterling; the *Peseta de Columnas* of 5 Reals, worth 1s. 0 $\frac{1}{2}$ d.; the *Peseta* of 4 Reals, worth 10d. sterling; the  $2\frac{1}{2}$  *Real-Piece*, worth 6d. sterling; the *Half-Peseta*, or 2 *Real-Piece*, worth 5d. sterling; and the 1 *Real-Piece*, worth 2 $\frac{1}{2}$ d. sterling.

The Copper coins were the *Half-Real*, worth 1 $\frac{1}{2}$ d. sterling; the *Quarter-Real* and pieces of 2 *Cuartos*\* (equal to 47 Centimos), and 1 *Cuarto* (equal to 23 $\frac{1}{2}$  Centimos).

## GIBRALTAR.

By an order in Council dated 21st February, 1872, and which came into operation on 1st May, 1872, the standard of value is the Spanish gold coin commonly called *doblon d'Isabel*, weighing 128·7 Troy grains, and containing by weight 90 parts of pure gold, and 10 parts of alloy.

The denominations of account will be Dollars, Reals-de-Vellon, and Decimas, and eventually perhaps, Reals-de-Vellon and Decimas only.

<i>Gibraltar value.</i>	<i>Systematic name.</i>	<i>English value.</i>
		£ s. d.
	Decima de Real-Vellon	= 0 0 0 $\frac{1}{2}$
10 Decimas de Real-Vellon	= 1 Real de Vellon	= 0 0 2 $\frac{1}{2}$
20 Reals de Vellon†	= 1 Dollar	= 0 4 2
100 Reals de Vellon or 5 Dollars	= 1 Doblont†	= 1 0 5

The Sanitary Commissioners of Gibraltar keep their accounts in Reals de Vellon and Centesimas the Decima being too large a unit to determine rates.

Army and Navy accounts at Gibraltar are kept in pounds, shillings, and pence sterling.

Under the order in Council of 21st February, 1872, the following are the coins authorised to be current in Gibraltar, and described as Her Majesty's current gold, silver, and copper coins:—

(a) Also called Quadruple Pistole.

(b) Also called Media-Onza, or Half-Doubloon.

(c) Also called Pistole, or Doubloon de Oohenta.

(d) Also called Oudrenta, or Doubloon 'e Escudo.

(e) Also called Coronilla, Escudito, Durillo, or Doubloon de Vienti.

\* 8 $\frac{1}{2}$  Cuartos were equal to 1 Real.

† 10 Reals de Vellon = 1 Escudo = 2s. 1d. sterling, but the Doblont d'Isabel and Escudo will hardly be adopted in mercantile accounts.

	Fine- ness.	Minimum Weight in Troy Grains.	Propor- tion to the Standard of Value.	English value.
<b>GOLD COINS:—</b>				
Doblon d'Isabel or 10 Escudos	·9	128·7	1·0	£ s. d. 1 0 5
4 Escudos (2 dollars) . . . .	·9	51·85	·4	0 8 2
2 " (Coronilla or gold dollar . . . . . )	·9	25·65	·2	0 4 2
<b>SILVER COINS:—</b>				
2 Escudos, peso duro, or hard dollar . . . . . )	·9	898·50	·2	0 4 2
1 Escudo, or half dollar . . . .	·9	199·0	·1	0 2 1
2 Reals of Plate, or ima- ginary Gibraltar Reals . . . . .	·898	95·0	·05	0 1 0
1 Real of Plate, or 1½ ima- ginary Gibraltar Real . . . . .	·898	46·	·025	0 0 6
½ Real of Plate or Doce . . . . .	·898	22·	·0125	0 0 3
<b>BASE SILVER COINS:—</b>				
4 Reals-Vellon, Peseta, or Peseta of Provincial Plate . . . . .	·81	79·50	·04	0 0 9½
2 Reals-Vellon . . . . .	·81	39·75	·02	0 0 4½
1 Real-Vellon . . . . .	·81	19·80	·01	0 0 2½
<b>BRONZE COINS:—</b>				
½ Real-Vellon . . . . .	·95	..	·005	0 0 1½
1 Cuartillo . . . . .	·95	..	·0025	0 0 0½
1 Double Decima de Real . . . . .	·95	..	·002	0 0 0½
1 Decima de Real or cen- tesima de Escudo . . . . .	·95	..	·001	0 0 0½
½ Decima de Real or 5 millesimas de Escudo . . . . .	·95	..	·0005	0 0 0½

The number of Doblon d'Isabel pieces that may be tendered at one payment is unlimited.

Not more than 10 of each of the 4, 2, and 1 Escudo pieces, and not more than 8 of each of the other silver coins may be legally tendered at a single payment. The bronze coins that may be legally tendered at one payment must not exceed 4 Reals-Vellon in value.

The rates assigned to British currency are ·98 of a Doblon d'Isabel for £1 sterling and so in proportion for every fraction of £1 sterling being 1 shilling or the multiple of 1 shilling; ·025 of a Doblon d'Isabel for 6d. sterling; and ·001 of a Doblon d'Isabel for every ¼d. sterling in any amount less than 6d.

#### OLD MONETARY SYSTEM.

Prior to 1872 accounts were kept in dollars, Reals of Plate, and Cuartos, and sometimes in dollars and Cents as follows:—

16 Cuartos	=	1 Real	=	4½d. English.
12 Reals	=	1 Dollar	=	4s. 2d. "
100 Cents	=	1 Dollar	=	4s. 2d. "

The following table of the old Gibraltar currency shows the value in British sterling money, and also in the new currency of Gibraltar:—

Old Gibraltar Currency.			British Sterling Money.			New Gibraltar Currency.		
Dollars.	Reals.	Quartos.	£	s.	d.	Doblon.	Reals.	Decimas.
0	0	1	0	0	0½	0	0	1
0	0	4	0	0	1	0	0	4
0	0	8	0	0	2	0	0	8
0	0	12	0	0	3	0	1	2
0	1	0	0	0	4	0	1	6
0	1	4	0	0	5	0	2	0
0	1	8½	0	0	6	0	2	5
0	1	12	0	0	7	0	2	9
0	2	0	0	0	8	0	3	3
0	2	4	0	0	9	0	3	7
0	2	7	0	0	9½	0	4	0
0	2	8	0	0	10	0	4	1
0	2	12	0	0	11	0	4	5
0	2	15	0	0	11½	0	4	8
9	2	15½	0	1	0	0	4	9
0	3	0	0	1	0½	0	5	0
0	5	15	0	2	0	0	9	8
0	7	8	0	2	6	0	12	3
1	0	0	0	4	2	0	20	4
1	2	6	0	5	0	0	24	5
2	4	12	0	10	0	0	49	0
4	9	9	1	0	0	0	98	0
9	7	3	2	0	0	1	96	0
24	0	0	5	0	0	4	90	0
48	0	0	10	0	0	9	80	0
240	0	0	50	0	0	49	0	0
480	0	0	100	0	0	98	0	0
4800	0	0	1000	0	0	980	0	0

The Gold Coins that were legally current in Gibraltar prior to May 1872 were the Gold Doblon\* of Spain reckoned at 16 dollars, or £3 6s. 8d. sterling; the ½\*, ¼\*, ⅛ and 1⁄16 Doblon pieces in like proportion; and the Doblon d'Isabel reckoned at 5 dollars or £1 0s. 10d. Sterling.

The Silver Coins were the same as given, under the head silver coins in the above table, namely the Duro = 2 Escudos = 5 Pesetas = 4s. 2d. sterling; the Escudo = 2½ Pesetas = 2s. 1d. sterling; the Peseta = 40 Escudos = 9½d. sterling;

\* These had very nearly disappeared from circulation in Gibraltar, and the place of the Doubloon of 16 dollars had been taken by the Doblon d'Isabel of 5 dollars, coined under the Spanish laws of 1848 and 1864.

the *Media Peseta* = 20 *Escudos* = 5d. sterling; and the *Real* = 10 *Escudos* =  $\frac{1}{2}$  *Peseta* = 2½d. sterling.

There was a mass of silver coins representing fractional parts of the dollar, these fractional coins being greatly defaced and worn. The French 5-franc piece circulated nominally as  $\frac{1}{2}$  of a dollar, but it was generally at a premium varying from 1 to 1½ per cent.

The copper coins were the *Cuarto* equal to ¼d. sterling; the *Media Real* equal to 1d. sterling; the *Cuartillo* equal to ¼d. sterling; the *Decima* equal to ¼d. sterling; and the *Media Decima* equal to ¼d. sterling. There were also English pence, halfpence, and farthings; and a great quantity of Foreign copper coins current nowhere else and that passed in Gibraltar according to their size as compared with the *Cuarto*.

## PORTUGAL.

The unit of account is the *Rei*, worth  $\frac{1}{16}$ d. sterling.\* A *Mil-reis* is one thousand reis, and a *conto* is one million reis; a *Moidore* is 4,800 Reis; a *Pinto* or *Cruzado Novo* 480 Reis, and a *Quartinho* is 1,200 Reis. The *Cruzado of Exchange* (or Old *Cruzado*) was 400 Reis; a *Mil-reis* =  $2\frac{1}{16}$  New *Cruzado* or  $2\frac{1}{2}$  Old ones. The Gold Coins are the *Corôa* of 10,000 Reis (\$10), the *Meia Corôa* of 5,000 Reis (\$5), the *Quintos de Corôa* of 2000 Reis (\$2), the *Decimos de Corôa* of 1,000 Reis (\$1), the *Peça* (formerly called a *Johanne* or *Joe*) of 8,000 Reis, and the *Meia Peça* of 4,000 Reis.

The Silver Coins are pieces of 500, 200, 100, and 50 Reis, and called respectively 5, 2, 1, and  $\frac{1}{2}$  *Testoon* pieces.

In billon there is the *Potaco* of 40 Reis.

The Copper Coins are the *Ventem* of 20 Reis, *Meio Ventem* of 10 Reis, and the 5 and 3 Reis pieces.

The 5 Reis piece is the coin of lowest value in common use.

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\* In accounts the symbol \$ is used to note the thousands' place, a colon (:) the place of millions (contos), and a full point (.) the place of thousands of millions. Thus one thousand millions of Reis would be 1,000:000\$000. No other denomination of money of account besides that of Reis is practically used in recording payments and receipts; but in expressing them it is usual, when the amount is less than a *moidore* (4\$800), to state them in *cruzados* (\$400), *cruzados novas*, or *pintos* (\$480), *quartinhos* (1\$200), *testoons* or *tostoes* (\$100), and *ventems* (20 Reis). Larger amounts are expressed in the *moidore* and its multiples, and sometimes in pounds sterling (*libras*) at the rate of 1\$7:00.



Table of Portuguese coins, showing their weight, fineness, and English value :—

Denomination of Coin.	Standard of fineness in	Weight in Grammes.	English value.
<b>GOLD COINS :—</b>			
Corôa of 10,000 Reis . . . .	$\frac{22}{24}$	17.735	£ s. d. 2 4 5½
Meia Corôa of 75,000 Reis.	$\frac{22}{24}$	8.868	1 2 2½
Quintos de Corôa of 2,000 Reis . . . . .		3.547	0 8 10½
Decimos de Corôa of 1000 Reis . . . . .		1.774	0 4 5½
Peça of 8,000 Reis . . . . .		14.188	1 15 6½
Meia Peça of 4,000 Reis . . . . .		7.094	0 17 9½
British Sovereign at 4,500 Reis . . . . .		7.981	
British Half-Sovereign at 2,250 Reis . . . . .		3.995	
<b>SILVER COINS :—</b>			
Cincos Testões of 500 Reis	$\frac{22}{24}$	12.5	0 2 2½
Dois Testões of 200 Reis . . . . .		5.	0 0 10½
Testão of 100 Reis . . . . .		2.5	0 0 5½
Half-Testão of 50 Reis . . . . .		1.25	0 0 2½
<b>BILLON COIN :—</b>			
Potacão of 40 Reis . . . . .			0 0 2½
<b>COPPER COINS :—</b>			
Vintem of 20 Reis . . . . .			0 0 1½
Meio-Vintem of 10 Reis . . . . .			0 0 0¾
Cinco Reis of 5 Reis . . . . .			0 0 0¾
3 Reis . . . . .			0 0 ¾

The former coins of Portugal were as follows :—

*Gold Coins.*—Dobraon, worth 12,800 Reis; Half-dobraon, called also the Joanese or Moidore, worth 6,400 Reis; the Quarter-dobraon, worth 3,200 Reis; Escudo, worth 1,600 Reis; Half-escudo, worth 800 Reis; and Crusado-velho, worth 400 Reis.

*Silver Coins.*—Crusado-novo worth 480 Reis, and pieces of 240, 120, 100, 60, and 50 Reis.

*Copper Coins.*—Pieces of 5, 8, and 1½ Reis.

PORTUGUESE VALUE OF ENGLISH MONEY, 4s. 5½d. FOR A MILREIS.

<i>English.</i>	<i>Portuguese.</i>	<i>English.</i>	<i>Portuguese.</i>
¼d. =	4½ Reis.	2s. =	450 Reis.
½d. =	9½ "	2s. 6d. =	562½ "
1d. =	18½ "	5s. =	1125 "
3d. =	56½ "	10s. =	2250 Reis, or 2½ Milreis.
4d. =	75 "	£1 =	4½ Milreis, or 4500 Reis.
6d. =	112½ "	£5 =	22½ " or 22500 "
1s. =	225 "	£10 =	45 " or 45000 "

### THE NETHERLANDS.

<i>Dutch value.</i>	<i>Systematic Name.</i>	<i>English value.</i>
	1 Cent	= ¼d.
100 Cents =	1 Guilder or Florin	= 1s. 8d.

The gold coinage in Holland was suppressed by law in 1850, and has not since been re-established. It consisted of the 10 *Gulden* and 5 *Gulden Pieces*. These are sometimes met with, but they are not a legal tender; their price rises and falls with the fluctuations of the market. The average price of the 10 *Gulden Piece* is about 9 *Guldens* and 85 *Cents*, and that of the 5 *Gulden Piece* about 4 *Gulden* and 82 *Cents*.

### SILVER COINS.

The silver coins are the 2½ *Gulden Piece* (sometimes called *Rixdollar*, the *Florin* or *Guilder*, and the ½ *Florin*. These are of the fineness of  $\frac{9}{10}$ ths, and the *Florin* weighs 866·17 grains *Troy*. There are also in silver of a lower standard the 25, 10, and 5 *Cent Pieces*. The 5 *Cent Piece* is often called a *stiver*.

### COPPER COINS.

The copper coins are the *Cent* and the ½ *Cent*, worth respectively ¼d. and ½d. sterling.

### BANK NOTES.

• 1, 5, 10, 25, 40, 60, and 100 *Gulden*.

Denomination of Coin.	Standard of fineness in thousandth parts.	Weight in grammes	English value		
			£	s.	d.
<b>Gold Coins:—None</b>					
<b>Silver Coins:—</b>					
2½ Gulden	·945	25	0	4	2
1 Guilder or Florin	"	10	0	1	8
½ do.	"	5	0	0	10
25 Cents			0	0	5
10 do.			0	0	2
5 do.			0	0	1
<b>Copper Coins:—</b>					
Cent			0	0	0½
½ Cent			0	0	0¼

DUTCH VALUE OF ENGLISH MONEY AT 1s. 8d. PER GUILDER.

English.	Dutch.	English.	Dutch.
½d. =	1½ Cents	2s. =	1 Florin 20 Cents
¼d. =	2½ "	2s. 6d. =	1½ Florins
1d. =	5 "	5s. =	8 "
8d. =	15 "	10s. =	6 "
4d. =	20 "	£1 =	12 "
6d. =	30 "	£5 =	60 "
1s. =	60 "	£10 =	120 "

The former moneys of account, and the coins were as follows:—The Guilder was divided into 20 Stivers, and each Stiver into 16 Pfennings. *Gold Coins*: Ducat, worth 5 Guilders 17 Stivers, or 9s. 9d. sterling; Half Ducat, worth 2 Guilders 18 Stivers 8 Pfennings, or 4s. 10½d. sterling; Ryder, worth 14 Gulden, or £1 8s. 4d. sterling; Half Ryder, worth 7 Gulden, or 11s. 8d. sterling; William, worth 10 Gulden, or 16s. 8d. sterling; and the Half William, worth 5 Gulden, or 8s. 4d. sterling. *Silver Coins*: Ducaton, worth 8 Gulden 8 Stivers, or 5s. 8d. sterling; Zealand Rixdollar, worth 4s. 4d. sterling; and ½ and ¼ Rixdollars in proportion; pieces of 30, 28, 12½, 6, 2, and 1 Stiver, worth respectively, 2s. 6d., 2s. 4d., 1s. 0½d., 6d., 2d., 1d. sterling. *Copper Coins*. Doit, worth 2 Pfennings, or ½ of one penny sterling.

BELGIUM.

Belgium value.	Systematic name.	English value.
	1 Cent.	=
100 Centimes =	1 Franc	=
		100d.
		9½d.

The gold coins are pieces of 100, 50, 20, 10, and 5 Francs.

The silver coins are the 5, 2, 1, and  $\frac{1}{2}$  Franc pieces, and the 20 Centime piece.

There are bank notes of 1000, 500, 100, and 50 Francs.

The copper coins are pieces of 1 and 2 *Centimes*, and the nickel coins are pieces of 5, 10, and 20 *Centimes*.

No billon coins form any part of the present currency of Belgium.

Coins of 50 Centimes are not a legal tender for payment of more than  $\frac{1}{10}$ th of the sum due.

In copper coins not more than 5 Francs' worth are legal at a single payment.

TABLE OF THE CURRENT COINS OF BELGIUM

Denomination of Coin.	Full Weight in Grammes.	Allowance in weight. Thousandth parts.	Standard fineness in thousandth parts.	Allowance from Std. thousandth parts.	Diameter. Millimetres.	English Value.		
						£	s.	d.
<b>GOLD COINS:</b>								
100 Francs	32258.06	1			35	3	19	2
50 "	16129.3	1			28	1	19	7
20 "	6451.61	2	900	2	21	0	15	10
10 "	3225.80	2			19	0	7	11
5 "	1612.90	3			17	0	3	11 $\frac{1}{2}$
<b>SILVER COINS:</b>								
5 "	25	3	....	..	37	0	3	11 $\frac{1}{2}$
2 "	10	5			27	0	1	7
1 "	5.00	5			23	0	0	9 $\frac{1}{2}$
50 Centms.	2.50	7			18	0	0	4 $\frac{1}{2}$
20 "	1.00	10	835	3	16	0	0	1 $\frac{9}{10}$
<b>NICKEL COINS:</b>								
20 "	.....	..	....	..	..	0	0	1 $\frac{9}{10}$
10 "	.....	..	....	..	..	0	0	1
5 "	.....	..	....	..	..	0	0	0 $\frac{1}{2}$
<b>COPPER COINS:</b>								
2 "	.....	..	....	..	..	0	0	0 $\frac{1}{2}$
1 "	.....	..	....	..	..	0	0	0 $\frac{1}{4}$

## DENMARK.

<i>Danish value.</i>	<i>Systematic Name.</i>	<i>English value</i>
	1 Skilling	= $1\frac{1}{10}$ d.
96 Skilling =	1 Rigsdaler or Daler	= 2s. $2\frac{1}{10}$ d.

The unit of the monetary system is the *Rigsdaler* or *Daler*, till recently officially called "Rigsbankdaler," but this term is now never used. Sixteen Skilling are equal to 1 Mark, and consequently 6 Marks are equal to 1 Rigsdaler.

Silver is the standard of the currency in Denmark.

## SILVER COINS.

The silver coins are the *Dobbeltdaler*, worth about 4s.  $4\frac{1}{10}$ d. sterling; the *Rigsdaler* worth about 2s.  $2\frac{1}{10}$ d. sterling; the  $\frac{1}{2}$  *Rigsdaler* or 48 *Skilling Piece*, worth about 1s.  $1\frac{1}{10}$ d. sterling; the 16 *Skilling Piece*, worth about  $4\frac{1}{10}$ d. sterling; and the 4 *Skilling Piece*, worth  $1\frac{1}{10}$ d. sterling.

The silver used in the coinage of the Dalers and the Dobbeltdalers is  $\frac{1}{10}$ ths fine, that is, it consists of 7 parts of pure silver and 1 part of alloy (copper). The pieces of 48 Skilling, 16 Skilling, and 4 Skilling, though silver, are of an inferior standard. Dalers and Dobbeltdalers are coined at the rate of 18½ Dalers from the Cologne Mark weight (3608 grains Troy) of fine silver, while the pieces of 48, 16, and 4 Skilling are coined at the rate of 20 Dalers from the same weight, and no one is obliged to receive at a single payment more than a limited amount of the smaller and less pure coins which consist of about equal weight of silver and copper.

## GOLD COINS.

The gold coins are *Christian d'or* and *Frederick d'or*, equal to 7 Dalers 36 Skilling, and worth about 16s. 2½d. These are commonly seen in North Germany, but are rare in Denmark itself.

## BRONZE COINS.

The bronze coins are the *Skilling Piece* and the  $\frac{1}{2}$  *Skilling Piece*. The bronze in these coins is composed of 90 parts of copper, 5 of tin, and 5 of zinc. There are no copper coins properly so called in circulation.

## BANK NOTES.

The National Bank of Copenhagen issues notes for 1, 5, 10, 50, and 100 Rigsdalers. These are in very general use as a medium of payment, and are received at their full nominal value, being always convertible into specie at that rate.

DANISH VALUE OF ENGLISH MONEY, AT 2s. 2½d. FOR A RIGSDALER.

<i>English.</i>		<i>Danish.</i>	<i>English.</i>		<i>Danish.</i>
½d.	=	7½ Skilling	2s.	=	87½ Skilg
¼d.	=	19½ "	2s. 6d.	= 1	Rigsdaler 13½ "
1d.	=	39½ "	5s.	= 2	" 26½ "
3d.	=	107½ "	10s.	= 4	" 53½ "
4d.	=	147½ "	£1	= 9	" 107½ "
6d.	=	217½ "	£5	= 45	" 447½ "
1s.	=	487½ "	£10	= 90	" 897½ "

### SWEDEN.

The denominations of money in Sweden are the Öre and the Riksdaler.

<i>Swedish value.</i>		<i>Systematic name.</i>		<i>English value.</i>
		Öre	=	⅓d.
100 Öre	=	1 Riksdaler	=	1s. 1½d.

Silver is the standard currency of Sweden. The "Mint Silver" or silver used in the coinage is of the fineness of ⅔ths, that is, it contains 8 parts of pure silver to 1 part of an alloy of copper.

Two Swedish pounds of "Mint Silver" (about 80 ounces British) are coined into 100 Riksdaler pieces; and the same proportion is followed in the coins that are multiples or parts of the Riksdaler.

### GOLD COINS.

There are no gold coins in the present legal currency of Sweden. Swedish gold Ducats have been coined, but they are rarely met with in the transactions of purchase and sale, and they have no fixed legal value. They are received at the Bank of Sweden at the same rate as Dutch Ducats, namely 8 Riksdalers, 50 Öre per Ducat. The bank charges 10 Öre per Ducat more for them than it pays.

### SILVER COINS.

The silver coins are the 4 *Riksdaler Piece* worth about 4s. 5½d. sterling, the 2 *Riksdaler Piece* worth about 2s. 2½d. sterling, and the *Riksdaler* worth 1s. 1½d. sterling, the 50 Öre piece,

the 25 Öre piece, and the 10 Öre piece, worth respectively, about 6 $\frac{2}{3}$ d., 3 $\frac{1}{2}$ d., and 1 $\frac{1}{2}$ d. sterling.

The piece of 4 Riksdalers is not very common, the coins in most general use are the 2 and 1 Riksdalers, and the 50 Öre, 25 Öre, and 10 Öre pieces.

**BILLON COINS.**

There are no billon coins in the present legal currency of Sweden, but some old pieces of  $\frac{1}{4}$ th and  $\frac{1}{3}$ rd of a Riksdaler in debased silver are sometimes met with, and are taken in market transactions.

**COPPER COINS.**

The copper coins are pieces of 5, 2, 1, and half-öre worth respectively,  $\frac{1}{4}$ d.,  $\frac{1}{2}$ d.,  $\frac{1}{4}$ d.,  $\frac{1}{8}$ d. sterling. There are still some copper coins of the old system in circulation. These are a legal tender under the present system, but they are fast disappearing. The "Mint Metal" used in the copper coins consists of 95 parts of copper to 5 of tin and 1 of zinc. 100 pounds (Swedish) of "Mint Metal" are coined into 5000 5-öre pieces, 7500 2-öre pieces, 15,000 1-öre pieces or 80,000 half-öre pieces. So that "Mint Metal" of Sweden at its current value is worth 1s. 8d. sterling per lb.

**BANK NOTES.**

1,000, 500, 100, 50, 25, 10, 5, and 1 Riksdalers.

**SWEDISH VALUE OF ENGLISH MONEY, AT 18 RIKSDALERS FOR £1 STERLING.**

<i>English.</i>		<i>Swedish.</i>	<i>English.</i>		<i>Swedish.</i>
$\frac{1}{4}$ d.	=	1 $\frac{1}{2}$ öre	2s.	=	1 Riksdlr. 80 ore
$\frac{1}{2}$ d.	=	3 $\frac{1}{2}$ "	2s. 6d.	=	2 " 25 "
1d.	=	7 $\frac{1}{2}$ "	5s.	=	4 " 50 "
3d.	=	22 $\frac{1}{2}$ "	10s.	=	9 " "
4d.	=	30 "	£1	=	18 " "
6d.	=	45 "	£5	=	90 " "
1s.	=	90 "	£10	=	180 " "

**NORWAY.**

<i>Norwegian value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Skilling	= $\frac{1}{3}$ d.
24 Skillingen	1 Ort or Mark*	= 10 $\frac{1}{2}$ d.
5 Ort	1 Species-Daler	= 4s. 5 $\frac{1}{2}$ d

\* It is called a Mark in South Norway, but in West and North Norway it is called an Ort.

It is proposed to introduce the decimal system in Norway, and the subject is still under the consideration of the Storting.

In the present system of currency Species-Dalers are coined at the rate of  $19\frac{7}{17}$  from the Münzpfund of 500 French Grammes, or  $9\frac{1}{4}$  Species-Dalers from the Cologne Mark weight (3608 grains Troy) of fine silver.

#### SILVER COINS.

The silver coins are the *Species-Daler*, worth 4s. 5½d. sterling, and the *Half-Species-Daler*, worth 2s. 2½d. sterling, the *Ort*, *Half-Ort*, and *Quarter-Ort* respectively. In small silver money (*Skillemynt*\*) there are Pieces of 4, 3, and 2 Skillengen, coined at the rate of  $21\frac{12}{100}$  Species-Dalers from the Münzpfund. These are worth respectively 1½d. and ¾d. sterling.†

#### COPPER COINS.

The copper coins are the 2, the 1, and the ½ *Skilling Pieces* worth respectively ¾d., ½d., and ¼d. sterling.

There are no gold coins in the currency of Norway, and for sums above 1 Ort, Paper money is the chief medium of payment.

#### BANK NOTES.

The Bank Notes in circulation are those of 100, 50, 10, 5, 1, ½, and ¼ Species-Daler. The notes of 100 Species-Daler are on pink paper, those of 50 Species-Dalers are on green paper, the 10 on yellow paper, the 5 on blue paper, and the 1, ½, and ¼ on white paper.

The Norwegian Bank exchanges these notes for *specie* at a rate varying from 110 to 116 Paper-Dalers for 100 Species-Dalers.

\* The term *skillemynt* denotes small copper money of 2 and 1 Skillengen, as well as small silver money of 4 and 2 Skillingen.

† Swedish and Danish money circulate in Norway. They pass freely in towns but not so readily in the interior of the country. In old debased silver, much worn, there are Danish 8 and 4 Skilling Pieces which were issued during the War from 1808 to 1814; these pass for 6 and 3 Skillingen respectively. There are also in plated copper Danish 2 Skilling Pieces of the period (1880-1814) when Norway and Denmark were politically united. In Christiana and Bergen one frequently meets with Swedish half-daler and quarter-daler pieces.



NORWEGIAN VALUE OF ENGLISH MONEY AT 4s. 5½d. FOR 1 SPECIE-DALER.

<i>English.</i>		<i>Norwegian.</i>	<i>English.</i>		<i>Norwegian.</i>
½d.	=	$\frac{2}{3}$	Skilling.	2s. 6d.	= 2 Ort, 19½ Skillingen.
¼d.	=	$1\frac{1}{3}$	"	5s.	= { 5 " 15 "
1d.	=	2½	Skillingen.		{ 1 Spec.-dlr- 15 "
8d.	=	6½	"	10s.	= { 2 Species-dalers 1 ört
6d.	=	18½	"		{ 6 Skillingen
1s.	=	{ 27	"	£1	= 4½ Species-Dalers
		{ 1 Ort 8	"	£5	= 22½ "
2s.	=	{ 2 " 6	"	£10	= 45 "

SWITZERLAND.

<i>Swiss value.</i>		<i>Systematic Name</i>		<i>English value.</i>
		1 Rappe	=	$\frac{1}{80}$ d.
100 Rappen or } Centimes }	=	1 Franc	=	9½d.

The system of currency and the gold and silver coins, as well as the Swiss value of English money, are the same as in France. (See pp. 17-18.)

BILLON COINS.

The billon or mixed metal coins are the *Zweitbatzen* or 20 *Centime Piece*, the *Batzen* or 10 *Centime Piece*, and the *Halbbatzen* or 5 *Centime Piece*, worth respectively  $1\frac{1}{8}$ d.,  $\frac{1}{2}$ d., and  $\frac{1}{4}$ d. sterling. These coins contain respectively 150, 100, and 50 parts of pure silver to 850, 900, and 950 parts of alloy. The alloy is composed of copper, zinc, and nickel.

COPPER COINS.

The copper coins are the *Zweier* or 2 *Rappen Piece* and the *Rappe*, worth respectively  $\frac{1}{80}$ d. and  $\frac{1}{160}$ d. sterling, and weighing  $2\frac{1}{2}$  and  $1\frac{1}{2}$  grammes. No one is obliged to receive in payment more than 20 Francs in value of the silver coins under the 1 Franc piece, more than 20 Francs worth of billon or Rappen, or more than 2 Francs worth of copper.

## ITALY.

When the Italian States were united into one kingdom under King Victor Emmanuel, one uniform system of money, as well as of weights and measures, began to be gradually introduced, so that the money in which accounts are kept, both in public and private establishments, is as follows. (See, however, the tables of money for Rome, the Two Sicilies, and Tuscany).

<i>Italian value.</i>		<i>Systematic Name.</i>		<i>English value.</i>
		1 Centime	=	$\frac{1}{100}$ d.
100 Centimes	=	1 Lira	=	9 $\frac{1}{4}$ d.

## GOLD COINS.

The gold coins are pieces of 100, 50, 20, 10, and 5 Lire, of the same weight, fineness, and value as the gold coins of France. (See pp. 17 and 18.)

## SILVER COINS.

The silver coins are pieces of 1, 2, and 5 Lire, and of 50 and 20 Centimes, of the same weight and fineness as the silver coins of France. (See pp. 17 and 18.)

## BILLON COINS.

In Lombardy and Piedmont there are still some old pieces in Billon, which as they fall in readily enough with the decimal system have not yet been called in. These are the *Mouta* and the *Half-Mouta*, equal respectively to 40 and 20 Centimes, and worth about 4d. and 2d. sterling.

## COPPER COINS.

The copper coins are pieces of 1, 3, and 5 Centimes, worth respectively  $\frac{1}{10}$ d.,  $\frac{3}{10}$ d., and  $\frac{1}{2}$ d. sterling.

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\* The following coins, now obsolete, are very rarely met with in circulation. The gold *Doppia* and *Half-Doppia* of Savoy, the former equal to 28 Lire 45 Centimes, and worth about \$1 2s. 10 $\frac{1}{2}$ d. sterling, and the latter equal to 14 Lire 23 $\frac{1}{2}$  Centimes, and worth about 11s. 5 $\frac{1}{2}$ d. sterling. The *Quadruple-Doppia* of Genoa, equal to 79 Lire, and worth about \$3 8s. 4d. sterling; and pieces of  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$  of the *Quadruple-Doppia*.

## SARDINIA (ISLAND OF).

The moneys of account are the same as those of Italy, and the currency consists of Italian and French coins.

Formerly this island had a special currency, and accounts were stated in *Lire, Reals, and Sols*, as follows:—

5 Sols	=	1 Real	=	48 Centimes	=	4·512d. sterling.
4 Reals	=	1 Lira	=	192 „	=	18·048d. „

The following is a list of the old coins of the Island of Sardinia:—

	<i>Sardinian.</i>		<i>Italian.</i>		<i>English value.</i>	
GOLD COINS:—	<i>Lire.</i>		<i>Lire.</i>	<i>Centimes.</i>	<i>£</i>	<i>s. d.</i>
Carlino	=	26	=	50 0	=	2 0 0
½ ditto	=	13	=	25 0	=	1 0 0
Dopletta	=	5½	=	10 0	=	0 8 0
SILVER COINS:—						
Scudo	=	2½	=	4 80	=	0 8 9·12
½ ditto	=	1½	=	2 40	=	0 1 10·66
¼ ditto	=	¾	=	1 20	=	0 0 11·23
BILLON COINS:—		<i>Sols.</i>				
Real	=	5	=	0 48	=	0 0 4·504
½ ditto	=	2½	=	0 24	=	0 0 0·252
COPPER COINS:—						
Sol	=	1	=	0 10	=	0 0 0·389
½ ditto	=	½	=	0 5	=	0 0 0·194
Cagliarese	=	⅓	=	0 1	=	0 0 0·094

## ROME.

By a Papal edict in June, 1866, the old monetary system, consisting of Quattrini, Bajocchi, Paoli, and Scudi, was abolished, and all the old coins of those denominations were called in. The following is the present monetary system of Rome:—

<i>Roman value.</i>		<i>Systematic name.</i>	<i>English value.</i>
			<i>£ s. d.</i>
20 Soldi or } 100 Centesimi }	—	1 Lira	= 0 0 9½

## GOLD COINS.

100 Lire	=	18 Scudi	60·5 Bajocchi	=	4 0 0
50 "	=	9 "	30·25 "	=	2 0 0
20 "	=	3 "	73·1 "	=	0 16 0
10 "	=	1 Scudo	86·05 "	=	0 8 0
5 "	=		93·025 "	=	0 4 0

## SILVER COINS.

5 "	=	93·025 "	=	0 4 0
2 " 50 c.	=	46·512 "	=	0 2 0
2 "	=	37·210 "	=	0 1 7
1 "	=	18·605 "	=	0 0 9½
½ "	=	9·302 "	=	0 0 4½
¼ "	=	4·651 "	=	0 0 2½

The 5 Lire Piece is  $\frac{900}{1000}$ ths fine; the  $2\frac{1}{2}$ , 2,  $1\frac{1}{2}$ ,  $\frac{1}{2}$  Lire Pieces are only a fraction above  $\frac{800}{1000}$ ths fine; and so 1,000 Lire in 5 Lire Pieces would contain a quantity of pure silver greater by 69 Lire than the same sum in the smaller or "fractionary" coins—the pieces of  $2\frac{1}{2}$ , 2, 1,  $\frac{1}{2}$ , and  $\frac{1}{4}$  Lire.

## BRONZE COINS.

4 Soldi or 20 Centesimi	=	3·721 "	=	0 0 1 $\frac{2}{10}$
2 " " 10 "	=	1·860 "	=	0 0 1
1 Soldo " 5 "	=	0·930 "	=	0 0 0½
½ " " 2½ "	=	0·465 "	=	0 0 0¼
1 Centesimo	=	0·186 "	=	0 0 0 $\frac{1}{10}$

Prior to 1866 the monetary system of Rome and of the Papal Dominions was as follows:—

Roman value.	Systematic name.	English value.
10 Bajocchi	= 1 Bajocco	= ½d.
10 Paoli or	= 1 Paolo	= 5d.
100 Bajocchi }	= { 1 Scudo or	= 4s. 2d.
	{ Roman Crown }	

Bankers' accounts were usually stated in Paoli.

The values just given for Roman money are higher than the estimated *par* of Exchange, which was about 48·88 Paoli in gold, or 47·58 Paoli in silver for £1 sterling.

The gold coins were the 10 *Scudi Piece*, worth about 41s. 8d.; the *Pistole* or *Gold Doppia*, worth about 18s. 6d.; the *Sequin* (23 Paoli), worth about 9s. 2d.; the *Double Sequin*, worth about 15s. 4d.; and the *Half-Sequin* (11 Paoli), worth about 4s. 7d. sterling.

The silver coins were the *Scudo*, worth about 4s. 2d.; and the *Half-Scudo*; and the pieces of  $\frac{1}{2}$ , 1, 2, and 3 *Paoli*, worth respectively 2½d., 5d., 10d., and 1s. 8d. sterling.

In base silver, or billon, there were the pieces of 3, 4, 7½, and 15 Bajocchi. The two last were called *Single* and *Double Carlini*.

The copper coins were the *Bajoccho*, the *Half-Bajoccho*, and the *Quarter-Bajoccho*, worth respectively about ¼d., ½d., and ¼d. sterling.

Bank notes (*Cedole*) for 5, 10, 20, 25, and 100 Scudi were used in payments above 5 Scudi.

## THE TWO SICILIES.

(NAPLES.)

<i>Neapolitan value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Grano	=
100 Grani	= 1 Ducat	=
		5 s. d.
		100
		8s. 6½d.

The Ducat was equal to about 8s. 5½d. sterling, and that is calculating the exchange at 578 Grani for £1 sterling.

Accounts were kept in Ducats and Grani only, but the Ducat was divided into 10 Carlini, each Carlino into 10 Grani, and each Grano into 10 Calli. The Ducat weighed 22·948 grammes of silver ¾ths fine, and was, therefore, equal to 4·25 Francs.

Payments were usually made in Neapolitan dollars, each worth 12 Carlini or 120 Grani.

There were no gold coins in circulation when the Kingdom was merged in that of Italy, but the gold coins that had been issued under the law of the 20th April, 1818, were pieces of 80, 15, and 8 Ducats respectively.

The silver coins were the *Dollar*, equal to 12 Carlini or 120 Grani, and worth 56d. sterling; the *Half-Dollar*, equal to 6 Carlini or 60 Grani, and worth 28d. sterling; the ½, 1, 2, 3, and 4 *Carlini Pieces*.

The copper coins were pieces of 5, 4, 3, 2½, 2, 1½, 1, and ½ *Grani* respectively. The *Half-Grano Piece* was called a *Tornese*. The Grano had formerly been divided into 12 Calli, and among the poorer classes three Calli-pieces were in circulation when the Kingdom became a province of Italy, but these passed only for 2½ Calli.

## TUSCANY.

100 Cents = 1 Florin.

By the law of 10th July, 1826, the money of account was ordered to be from 1st January, 1827, Florins and Cents, but owing to the apathy of the people and the Government, the law was never enforced, and accounts continued to be kept, even in the Government offices, in *Lire*, *Soldi*, and *Denari*.

<i>Tuscan value.</i>	<i>Systematic name.</i>	<i>English value.</i>
12 Denari	= 1 Soldo	= ¼d.
20 Soldi	= 1 Lira	= 7½d.

The *Lira* was equal to about 8d. sterling. The *Denaro* was an imaginary coin, and the lowest coin in circulation was the *Quattrino*, equal to 4 Denari, and worth about  $\frac{1}{12}$ d. sterling.

## GOLD COINS.

The gold coins were the 80 *Florin Piece*, equal to 188 Lire 6 Soldi 8 Denari, and worth at par £4 8s. 10d. sterling; the *Raspone*, equal to 40 Lire, and worth £1 6s. 8d. sterling; and the *Giulato*, or *Zecchino*, equal to 18 Lire 6 Soldi, 8 Denari, and worth 8s. 10d. sterling.

## SILVER COINS.

The silver coins were the *Dena*, equal to 10 Lire, and worth 6s. 8d. sterling; the *Francescone*, equal to 6 Lire, 18 Soldi 8 Denari, and worth 4s. 5d. sterling; the *Mesa-Dena*, equal to 5 Lire, and worth 8s. 4d. sterling; the *Franceschino*, equal to 8 Lire 6 Soldi 8 Denari, and worth 2s. 2½d. sterling; the *Testone*, or 8 *Paul Piece*, equal to 2 Lire, and worth 1s. 4d.; the *Florino*, equal to 1 Lira 18 Soldi 4 Denari, and worth 1s. 1½d. sterling; the 2 *Paul Piece*, equal to 1 Lira 6 Soldi 8 Denari, and worth 10½d. sterling; the *Lira*, worth 8d. sterling; the *Messo-Florino*, equal to 16 Soldi, 8 Denari, and worth 6½d. sterling; the *Paolo*, equal to 18 Soldi 4 Denari, and worth 5½d. sterling; the *Messo-Lira*, equal to 10 Soldi, and worth 4d. sterling; the *Cinquino* (¼ Florin), equal to 8 Soldi 4 Denari, and worth 8½d. sterling; and the *Messo-Paolo*, equal to 6 Soldi 8 Denari, and worth 8½d. sterling. The *Lira* weighed 3·9448 grammes of silver ·958 fine.

## COPPER AND MIXED COINS.

The copper and mixed metal coins were the *Due Craste Piece*, equal to 8 Soldi 4 Denari, and worth 1½d. sterling; the *Due Soldi*, equal to 2 Soldi, and worth ½d.; the *Crasia*, equal to 1 Soldo 8 Denari, and worth ¾d. sterling; the *Soldo*, worth ¾d. sterling; the *Duetto*, equal to 8 Denari, and worth  $\frac{1}{3}$ d. sterling; and the *Quattrino*, equal to 4 Denari, worth  $\frac{1}{3}$ d. sterling.\*

\* In Lucca accounts were kept in Lire, Soldi, and Denari, as follows:—

<i>Lucchese value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Denaro	$\frac{1}{12}$ d.
12 Denari	= 1 Soldo	$\frac{1}{3}$ d.
20 Soldi	= 1 Lira	8d.

The following were the coins in circulation:—

	<i>Lire.</i>	<i>Soldi.</i>	<i>Fra.</i>	<i>Cnts.</i>	<i>s.</i>	<i>d.</i>
The Gold Doppia	=	22 0	=	16 80	=	12 0
The Silver Scudo	=	7 10	=	5 02	=	4 5½
" " Mezzo-Soldo	=	3 15	=	2 51	=	2 2½
" " Terzo "	=	2 10	=	1 87	=	1 5½
" " Quinto "	=	1 10	=	1 12	=	0 10½
" " 2 Lire Piece	=	2 0	=	1 80	=	1 4
" " Lira	=	1 0	=	0 84½	=	0 8
" " Mezza-Lira	=	0 10	=	0 42	=	0 4

The Two Lire Piece was very like the French Two Franc Piece, and might have been mistaken for it. Tuscan money circulates side by side with the Lucchese currency.

## MALTA.

(With its Islet dependencies Gozo, Comino, and Filfla.)

ⁱ Mercantile accounts are kept either in *Scudi, Tari, and Grani*, or in *Piccioli, Carlini, Tari, and Scudi*, as follows:—

Maltese value.	Systematic name.	English value.
	1 Grano =	$\frac{1}{16}$ d.
20 Grani	= 1 Taro =	1 $\frac{1}{2}$ d.
12 Tari	= 1 Scudo =	1s. 8d.
	or,	
60 Piccioli	= 1 Carlino =	$\frac{1}{2}$ d.
2 Carlini	= 1 Taro =	1 $\frac{1}{2}$ d.
12 Tari	= 1 Scudo =	1s. 8d.

The Pezza, or Dollar of Exchange, contains 2 $\frac{1}{2}$  Scudi, 30 Tari, 60 Carlini, 600 Grani, 3,600 Piccioli.

The Government accounts of the duties and revenue are kept in *Pounds, Shillings, and Pence* sterling, as in Great Britain; and British silver coins at their nominal value are a legal tender without limitation, and are in very general use.

The following gold, silver, and copper coins form the currency of Malta:—

## GOLD COINS.

	Value in Maltese Currency.		
	Scudi.	Tari.	Grani.
Doubleon of Spain, Mexico, & South America	= 38	4	16
British Sovereign .. .. .	= 12	0	0
„ Half-sovereign .. .. .	= 6	0	0

## SILVER COINS.

Dollar of Spain, Mexico, and South America	= 2	6	0	
Pezza, or Dollar of Sicily*	.. .. .	2	4	16
British Crown (5s.) .. .. .	= 3	0	0	
„ Half-crown (2s. 6d.) .. .. .	= 1	6	0	
„ Shilling .. .. .	= 0	7	4	
„ Sixpence .. .. .	= 0	3	12	
„ Fourpence .. .. .	= 0	2	8	
„ Threepence .. .. .	= 0	1	16	

\* The Sicilian Dollar passed conventionally for 80 Tari, or 4s. 2d. sterling, although by an assay, at the British Mint, it was found to contain an average of only 14 dwts. 17.45 grains of pure silver. Its intrinsic value, calculating its average weight at the rate of 5s. per oz. of British standard silver, was only 8s. 11 $\frac{1}{2}$ d.; but by a royal proclamation it was ordained that the Sicilian Dollar should pass current and be a legal tender in the Island of Malta and its Dependencies at the rate of 4s. sterling, equal to 28 Tari 16 Grani in Maltese Currency.

## COPPER COINS.

	<i>Value in Maltese Currency.</i>		
	Scudi.	Tari.	Grani.
British Penny .. .. .	= 0	0	12
„ Half-penny .. .. .	= 0	0	6
„ Farthing .. .. .	= 0	0	3

The coins of the Order of Malta, which are now nearly out of circulation, are the Double, Single, and Half-Louis d'or, coined by the Grand Master, worth 20, 10, and 5 Scudi. In silver the Dollar and Half-Dollar, current at 30 and 15 Tari; the Scudo, at 12 Tari; and the Half-Scudo at 6 Tari. The copper coins are pieces of 4, 2, and 1 Tari. These latter coins are greatly over-rated, which formerly led to a distinction between silver and copper money, making the former to the latter as 3 to 2.

## TURKEY.

<i>Turkish value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Para	= $\frac{1}{8}$ d.
40 Paras =	1 Piastre	= $2\frac{1}{2}$ d.
* 100 Pistres =	1 Medjidie,* or } Lira Turca {	= 18s.

The present monetary system of Turkey was introduced in the reign of the late Sultan, Abdul Medjid; hence the name Medjidie as applied to the *Lira* and *Real* and their subdivisions.

The Medjidie, or Lira Turca, and the Piastre are the only integral denominations of money now used in keeping accounts, Paras being written as fractions of the Piastre.

In retail transactions of the shop and the market, the Piastre is divided into 40 Paras, and each Para into 3 Aspres. The Para is worth about  $\frac{1}{8}$ d., and the Aspre  $\frac{1}{24}$ d. sterling.

## GOLD COINS.

The gold coins are the *Medjidie*, or Lira Turca, worth from 17s. 9d. to 18s. sterling; the *Yarim*, or *Half-Medjidie*, worth from 8s. 10 $\frac{1}{2}$ d. to 9s., and the *Tzeirek*, or *Quarter-Medjidie*, worth from 4s. 5 $\frac{1}{2}$ d. to 4s. 6d. sterling.

The gold coins contain 11 parts pure in 12.

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\* In accounts,—  
Pr. denotes Piastre, and  
£ denotes Medjidie, or Lira Turca.



## SILVER COINS.

The silver coins are the *Ginmuk*, or *Real-Medjidie*, of 20 Piastres, worth from 8s. 6½d. to 8s. 7½d. sterling; the silver *Yarim*, or *Half Real-Medjidie* of 10 Piastres, worth from 1s. 9½d. to 1s. 9½d. sterling; the *Tzeirek* or *Quarter Real-Medjidie*, of 5 Piastres, worth from 10½d. to 10½d. sterling; the *Thilik*, or 2 *Piastre Piece*, worth about 4½d. sterling; the *Piastre Piece*, worth about 2½d.; and the *Half Piastre Piece*, worth about 1½d.

The silver coins contain 87 parts of pure silver to 8 parts of alloy; and silver is the chief standard of value.

## COPPER COINS.

The copper coins are the *Piastre Piece*,\* worth about 2½d. sterling; the *Half Piastre Piece*, worth about 1½d. sterling; the *Quarter Piastre Piece*, worth about ¾d. sterling; the 5 *Para Piece*, worth about ¼d., and the *Para Piece*, worth about ¼ of a farthing sterling.

A *Five Piastre Piece* was assayed by Sir John Herschel, in 1854. It weighed .1925 of an ounce Troy, and its fineness was .8814. At the Mint price of 5s. 6d. per ounce for standard silver this would give 11.4192d. sterling as the value of the *Five Piastre Piece*; but, compared with gold at the market price, its value to the nearest thousandth of a penny would be only 10.64d. sterling. In rough calculations the English value of the *Piastre* is usually taken at 2d. sterling.

The moneys of England, France, Austria, Spain, the South American Republics, Russia, Germany (in small quantities), and Egypt, are all circulated as freely as Turkish money. Their exchange value is constantly fluctuating, one kind of coin bearing sometimes an unusual premium, owing to its being required for a special purpose. It sometimes happens that a coin circulates at a higher rate than it bears in its own country. For instance, the Austrian Florin has been known to circulate in Jerusalem at an exchange value of ¼th higher than its nominal value,

To the undermentioned foreign coins the following are the nominal values assigned in Turkish currency, and the actual exchange rates at which some of them are received in the markets of Constantinople and Jerusalem.

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\* The *Piastre Piece* is not generally current. It is not received by the government at all, but is accepted by men of business at a discount of from 20 to 25 per cent.

	Nominal value.	Exchange value.
<b>GOLD COINS.</b>		
	Piastras.	Piastras.
Sovereign, English .. .. .	100	112 to 188
Napoleon, French .. .. .	86½	90 to 105
Imperial, Russian* .. .. .	88	98 to 105
Half Ditto .. .. .	44	
New Ducat, Austrian† .. .. .	58	
<b>SILVER COINS.</b>		
Dollar, Spanish .. .. .	28½	24½ to 31
Dollar, Austrian (Maria Theresa)	22½	25½ to 27
Ruble, Russian* .. .. .	16	18 to 20
Five Franc Piece, French .. .. .		25
Franc, French .. .. .		4 to 5
Half-Crown, English‡ .. .. .		12 to 15
Florin, ,, .. .. .		11½ to 12
Shilling, ,, .. .. .		5½ to 6

Egyptian gold is at about 10 per cent. premium as compared with Turkish gold.

The Turkish Lira Medjidie, nominally equal to 100 Piastras, always bears a premium of about 5 per cent.

#### OLD GOLD COINS.

There are various old gold pieces in circulation which, however, are never received by the government and seldom accepted as payment in the transactions of the market. They are chiefly used as ornaments for women. The principal old gold pieces are the *Vanducklee* or *Ghazi*, valued at 20 Piastras of Government money, the ½ *Vanducklee* and the ¼ *Vanducklee*. There is also the *Old Ghazi* = 25 Piastras and the *Old ½ Ghazi*. It is the most probable that these will be soon withdrawn altogether from the circulation.

#### BILLON COINS.

Throughout the whole of the Turkish Empire there are in circulation silver coins of a very low standard, largely alloyed with copper and greatly worn.

These billon coins are as follows:—

(1) The *Beshlic*, estimated at 5 Piastras, Government money, but worth much less in intrinsic value; and the ½, ¼, ⅓, and ⅒ *Beshlic* pieces.

\* Not in general circulation, but chiefly used as ornaments.

† Also called *Sequin* (Zeechin) or *Magyor*. This coin being very pure is in great demand in Turkey.

‡ Not much liked.

(2) The *Altlic*, estimated at 6 Piastres, Government money, and the  $\frac{1}{2}$  and  $\frac{1}{4}$  *Altlic* pieces.

(3) The 1,  $\frac{1}{2}$ , and  $\frac{1}{4}$ , *Old Piastre* pieces of the same inferior standard as the *Altlic* and *Beshlic* money.

(4) There are besides some old coins of a still lower standard, such as the *Nashlic* valued at 8 $\frac{1}{2}$  Piastres, and principally in use as head-ornaments worn by women.

In many parts of the empire there exist several money standards for the different coins. Thus, in Jerusalem for instance, there were in April 1864, the following rates:—

(1) The Government rate called *Sâgh* (good).

(2) *Schiruk* (low), for the shop and the market. According to this value 1 Lira Turca=118 Piastres; £1 sterling=128 to 130 Piastres; 1 Napoleon=101 Piastres; 1 Imperial=108 Piastres; 1 Ducat=68 Piastres; 1 Real Mejidie=23 $\frac{1}{2}$  to 24 Piastres; the Spanish Dollar=27 $\frac{1}{2}$  Piastres; 1 Ruble=21 Piastres; 1 *Altlic*=7 Piastres; 1 *Beshlic*=6 Piastres; 100 *Sâgh* or Government Piastres=115 to 116 old silver Piastres.

(3) *Schiruk* (low) for transactions with the *Fellachs* or peasants. According to this valuation £1 sterling=140 to 145 Piastres; 1 Lira Turca=128 to 132 Piastres.

Many places in Palestine, such as Bethlehem, Hebron, and Jaffa have special rates for coins.

TURKISH VALUE OF ENGLISH MONEY AT 18s. FOR A  
LIRA MEDJIDIE.

English.	Turkish.	English.	Turkish.
$\frac{1}{2}$ d. =	4 $\frac{1}{2}$ Paras	2s. =	10 Piastres 4 $\frac{1}{2}$ Paras
$\frac{1}{4}$ d. =	9 $\frac{1}{4}$ "	2s. 6d. =	13 " 85 $\frac{1}{2}$ "
1d. =	14 $\frac{1}{2}$ "	5s. =	27 " 31 $\frac{1}{2}$ "
8d. = 1 Piastre	15 $\frac{1}{2}$ "	10s. =	55 " 22 $\frac{1}{2}$ "
4d. = 1 "	34 $\frac{1}{4}$ "	£1 =	111 " 4 $\frac{1}{2}$ "
6d. = 2 "	31 $\frac{1}{2}$ "	£5 =	555 " 22 $\frac{1}{2}$ "
1s. = 5 "	22 $\frac{1}{2}$ "	£10 =	1111 " 4 $\frac{1}{2}$ "

### CANDIA (or Crete).

The money of account and the currency of Candia are the same as in Turkey.

### GREECE.

Greece having acceded to the Convention of 1865, her monetary system has become identical with that of France, Italy,

Belgium, and Switzerland (See pp. 17 and 18), the *Drachma* being the same as the Franc, and the *Lepton* as the Centime. The law establishing the new monetary system was dated 7th March, 1867, and subsequently, by a royal decree, the 18th January, 1872 was fixed as the date for the introduction of the new monetary system.

<i>Greek value.</i>	=	<i>Systematic name.</i>	=	<i>English value.</i>
100 Lepta	=	1 Drachma	=	9d.

The following table shows the standard of fineness, the weight, and English value of the Greek coins:—

Denomination of Coin.	Standard of fineness in thousandth parts.	Weight in grammes.	English value.	Diameter in Millimetres.	
<b>GOLD COINS:—</b>					
100 Drachmai ..	900	82.25806	£ s. d. 3 19 2	35	
50 " ..	"	16.12903	1 19 7	28	
25 " ..	"	8.064515	0 19 9½		
20 " ..	"	6.45161	0 15 10	21	
10 " ..	"	3.22580	0 7 11	19	
5 " ..	"	1.61290	0 8 11½	17	
<b>SILVER COINS:—</b>					
5 Drachmai ....	900	25	0 8 11½	37	
2 " ..	835	10	0 1 7	27	
1 " ..	"	5	0 0 9½	23	
50 Lepta.....	"	2.50	0 0 4½	18	
20 " ..	"	1.00	0 0 1½	16	
<b>BRONZE COINS:—</b>					
10 Lepta.....	} 950Copper {	10	0 0 1	30	
5 " ..		4 Tin	0 0 0½	25	
2 " ..		10 Zinc.	2	0 0 0½	20
1 Lepton .....		1	0 0 0½	15	

In the old system of currency and accounts, established by the law of the 8th February, 1838, the monetary unit was the Drachma, weighing 4.477 grammes of silver of the standard of  $\frac{9}{10}$ ths of pure silver and  $\frac{1}{10}$ th of copper alloy. For details of this system see Appendix IV.

## THE IONIAN ISLANDS.

(CORFU, SANTA MAURA, CEPHALONIA, ZANTE, CEBIGO, ITHACA,  
AND PAXO.)

The monetary system is that of Greece.

While these islands were under British protection (1830—1864) accounts were kept by some persons in *Dollars*, of 100 *Oboli*; by others in *Pounds* of 20 *Shillings*, of 12 *Pence* Ionian currency, and by others in *Piastres*, of 40 *Paras*.

			English.
5 <i>Oboloi</i>	=	1 <i>Oboloco</i>	$\frac{1}{4}$ d.
100 <i>Oboli</i>	=	1 <i>Dollar</i>	4s. 2d.
12 <i>Pence</i>	=	1 <i>Shilling</i> (currency)	1s. 0 $\frac{1}{2}$ d.
20 <i>Shillings</i>	=	1 <i>Pound</i> ( „ )	£1 Os. 9 $\frac{1}{2}$ d.
40 <i>Paras</i>	=	1 <i>Piastre</i>	2 $\frac{1}{2}$ d.

The current coins up to the cession of the islands by Great Britain were British gold, silver, and copper coins; Spanish, Mexican, South American, Austrian, and Venetian *Dollars*. The Spanish *Dollar* was reckoned at 104 *Oboli*, and all other *Dollars* at 100 *Oboli*. There were also the following pieces of Ionian currency:—In silver, the 80 *Oboli Piece*, worth 8d. sterling; and in copper, the pieces of 1 *Oboloco* and 2 $\frac{1}{2}$ , 5, and 10 *Oboli*, worth respectively  $\frac{1}{4}$ d.,  $\frac{1}{2}$ d.,  $\frac{1}{2}$ d. and 1d. sterling.

## CHINA.

The denominations of money used by the Chinese in keeping accounts are *Liang*, *Tsien*, *Fun*, and *Le*, called by foreigners *Taels*, *Mace*, *Candareens*, and *Cash*. Reckonings are never made above *Taels*, and the lower denominations are generally expressed as decimals of the *Tael*.

Chinese value.	Systematic name	English value.
	Cash ( <i>Le</i> )	$\frac{1}{100}$ d.
10 Cash	= 1 <i>Candareen</i> ( <i>Fun</i> )	$\frac{1}{10}$ d.
10 <i>Candareens</i>	= 1 <i>Mace</i> ( <i>Tsien</i> )	7d.
10 <i>Mace</i>	= 1 <i>Tael</i> ( <i>Liang</i> )	= 5s. 10d.

In China silver is the chief circulating medium, and there are no national gold or silver coins. For large payments, bullion of known purity passes current by weight.

In Shanghai, Tien-Tsin, Kewkeang, and Chinkeang, accounts are kept in *Taels*, and the medium of payment is the *Tael*

weight of silver, and the Mexican Dollar is now also largely used; but in Hong-Kong, Canton, Amoy, Foochow, and Swatow, Dollars and Cents are the moneys of account, and the Dollars of Mexico and the South American Republics form the chief medium of payment.

The *Tael* is a definite weight, and its subdivisions, the *Mao* and *Candareen*, are likewise weights, or rather decimal parts of the Tael. As denominations of money of account, they denote their respective weights of (reputed) pure silver. The monetary Tael is equal to 579.84 grains or 1.208 ounce Troy, and its value at that rate is about 6s. 6½d. sterling.

The Commercial Tael is heavier than the Monetary Tael, it is equal to 588½ Troy grains, that is assuming that 1 Chinese Cally = 1½ lbs. Avoirdupois\*.

\* The difference between the Monetary and Commercial Tael may be proved in this way: "Assuming the correctness of the Bombay Mint return, that the average weight of a new Dollar is 415.95 grains Troy, then \$1000 should weigh 717 Taels 8 M. 5 C.,† or about Half-a-Dollar more than they count, which any one who has seen new Dollars weighed must know is below the average; whereas, supposing that the weight of the Monetary Tael were 588½ grains Troy, then \$1000 would weigh 718 Taels 0 M. 6 C.,‡ or about \$5 shorter than they count, and this never occurs with Mexican Dollars." If the weights in the Chinese markets are tried by the Hong Kong Standard Tael Weights it will be found that the Commercial Tael is heavier than the Monetary by  $\frac{9}{10}$ ths per cent.—Butter.

? Grains Troy	= 1 Tael Commercial	4 ½	= 1	
16 Taels	= 1 Catty	1	= 1	
1 Catty	= ½ lbs. Avoirdupois	1	=	
1 lb. Avoirdupois	= 7000 Grains Troy	8	= ½	
		1	= 7000	
			7000	
			12	= 588½

† ? Taels	=	\$1000
\$1	=	415.95 grains Troy
579.84 grains	=	1 Tael
		4159500
		57984
		= 717.85 Taels.

‡ ? Taels	=	\$1000
\$1	=	415.95 grains Troy
588½	=	1 Tael
		124785
		1756
		= 718.06 Taels.

The Mexican Dollar is the current coin in Canton, and the South of China. In Foochow, the chief medium of payment consist of broken Spanish Dollars, while in Shanghai, Tien-Tsin, Han-Kow, and the Northern Ports, it is the Tael weight of silver.

The value of the Dollar in relation to the Tael varies, according to the rate of exchange, from 700 to 760 Taels for 1000 dollars. If payment is made in dollars they are taken at the market rate, but in accounts among foreigners the customary rate is 717 Taels for 1000 dollars.\*

The weight of 717 Taels is put in one scale and as many dollars as will balance it in the other. Hence a debt of 1000 dollars might happen to be paid by a number of dollars either exceeding or falling short of 1000.

In China the fineness of gold and silver is expressed by dividing their weight into 100 equal parts called *Touch*. The number of these parts denotes the proportion there is of pure metal in 100 parts by weight.

In Hong-Kong and Canton gold leaf is manufactured for commercial purposes as a medium of payment, and although guaranteed to be of 100 Touch has usually a touch of about 98 or 99 only.

The alloy used is called Pakfong, and is a mixture of zinc, nickel and copper.

The native Chinese banks have furnaces in which they fuse the precious metals (plate and foreign coin) and form them into ingots of various sizes and shapes, weighing from 3 Mace to 10 Taels. The date and place of issue, and the names of the assayer and banker are marked on each ingot.

The most common weight of the ingots is 10 Taels each; they are smooth and flat on the upper surface, and rather rough and rounded on the lower; their shape bears a slight resemblance to a Chinese shoe, hence foreigners call them shoes.

The silver ingots called shoes, of 5 Mace to 10 Taels are used as money, but the Gold ingots are regarded as articles of commerce. In the maritime provinces, Spanish, Mexican, and South American dollars, as coin, though not accepted by the Government, are used as a medium of payment at their nominal value; but the habit of stamping them soon destroys their weight, and then they are melted down into ingots.

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\* There have been, and perhaps still are, some exceptions to this rule—viz., "In settling for teas in Canton and Foochow, at so many Taels per Picul, the amount is converted into Dollars at 720, while, when paying the account, it is rendered back to Taels at 717; for Malwa opium the Chinese pay foreigners at 720, and for Bengal drugs at 718; and again the Chinese among themselves are supposed to pay at 712 to 715."—*Kutter*.

Ten Taels of pure silver are reckoned equal to 1 Tael of pure gold.

*Wên-Yin* is the Chinese term for fine silver, but the term *Se-Sze* (fine silver), or *Sysee* is also used. *Sysee* silver is never altogether pure. For the purposes of trade in the different provinces of the empire, ingots are moulded of different sizes and touches. The ingots forwarded to the Imperial Treasury at Peking in payment of taxes are of a touch of from 97 to 99, while the *Sysee* silver of commerce is generally of the fineness of 96.

When Chinese liabilities are liquidated in *Sysee* silver, 710 Taels are estimated as 1000 Dollars; thus the silver paid to the British authorities at Canton under the treaty of Nankin, in discharge of the Chinese indemnity, was received at that rate. This silver was found on assay to be of between 97 and 98 touch (*i.e.* 13 dwts. better than British Standard), and each lb. troy contained 13½ grs. of pure gold.

Reckoning 717 Taels as 1000 Dollars, and the Dollar as 4s. 2d. sterling, we have about 5s. 10d. as the approximate Dollar value of the Tael of Silver.

The *Lo*, or *Cash*,\* is the only coin issued by the Chinese Government. It is a circular piece of mixed metal (chiefly copper), about  $\frac{9}{16}$ ths of an inch in diameter. It has a square hole in the middle by which the pieces are strung in bundles of 100, for convenience in reckoning and carrying. It is cast, and not *minted*. It consists of 79 parts of copper, 10 of zinc, 7 of lead, and 4 of tin. The obverse bears the name of the province in which it is cast.

The reverse has the name of the reign above and below the hole with the words *Tung Pau*, signifying *current money*, on the right and left of the hole. Its weight should be 1 *Tsien* (*Mace*), equal to 57.98 grains, and its value the  $\frac{1}{1000}$ th of a Tael weight of silver; but its actual weight is from 62 to 64 grains, and its value is considerably below the legal standard, and from 1200 to 1400 *Cash* are commonly given for a Tael of silver. Hence it appears that the copper coin called a *Cash*, although it should be the same as the *Cash* of account, namely,  $\frac{1}{1000}$ th part of a Tael weight of silver, is quite distinct from it and of less value. The value of the copper *Cash* varies also with the supply; the rate is usually from 1000 to 1400 copper *Cash* for a Dollar.

From a chemical assay of 9 coinages of *Cash* issued by the Chinese Government in each reign since the commencement of the present dynasty in A.D. 1644, it appears that the intrinsic

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\* It is called *Sapeque* by the French.



value of the Cash varies from 4s. to 6s. 6d. per 1000. The result of that assay, as communicated by the Master of the Mint, in a dispatch dated 26th February, 1862, to the Secretary of State for the Colonies, is as follows:—"Assuming copper to be worth £100 per ton, and the alloy (zinc and lead) £20 per ton, the intrinsic value of 1000 Cash will be as follows, beginning with the earliest and ending with the latest coinage, that of the last Emperor:—

*Intrinsic value of 1000 Cash.*

	s.	d.		s.	d.	
Of 1st Emperor	6	5	of which	5	10½	is copper.
2nd Emperor	5	½	"	4	9½	" "
3rd Emperor	4	3½	"	3	8½	" "
4th Emperor	1st	6 0½	"	5	9½	" "
	2nd	4 8	"	3	6½	" "
5th Emperor	1st	6 2½	"	5	11½	" "
	2nd	5 0½	"	4	6	" "
6th Emperor	1st	5 0	"	4	2½	" "
	2nd	3 11½	"	3	1	" "
7th Emperor	4	6½	"	3	4½	" "

Calculated from this assay, the average intrinsic value of the legal Cash issued by the Chinese Government, and at present in circulation, is about 5s. 1½d. sterling for 1000 cash. But the proportion of counterfeit Cash in any single payment is usually very considerable, sometimes exceeding one-third, and the average rate at which in commercial transactions Cash are converted into Dollars is 970 Cash for a Dollar, or 4s. 3½d. for 1000 Cash.

The actual value of a Cash in 1854 in Canton was  $\frac{1}{18}$ th of a Candereen, but its value is constantly fluctuating. A mint, presided over by a Government Director, and supplied with coinage models from Peking, exists in each provincial city of the empire.

The Director weighs out the proper quantity of copper, receiving back from the workmen a corresponding amount of Cash (Le).

But occasionally the workmen put a little sand and iron dust into the model, so as to produce the required number of Cash, and retain a little of the copper for themselves. Hence the Cash has fallen below the Government standard. The Cash are chiefly used for small transactions in the Bazaar, or to pay coolies and labourers. Large payments are made in silver or gold by weight. Government taxes are always paid in this way.

## BANK NOTES.

The Bank Notes in circulation vary from 300 Cash to 1,000 Taels.

In the North of China BANK BILLS form a chief medium of payment. They are printed on coarse mulberry paper, and are considerably smaller than Bank of England Notes. They are issued for sums varying from 100 to 10,000 Cash and upwards, and are generally at a considerable discount for gold and silver. Paper money is more abundant at Peking than at Tien-Tsin. The rate of exchange between notes and Sysee silver is subject to constant variation.

At Peking there is a copper coin called *Tang-shih*. This coin does not circulate beyond the city, its value was 10<sup>4</sup> Cash, and in weight and purity it was nearly equal to the legal standard of the Cash. It was soon depreciated in weight, however, and fell to the intrinsic value of 4 Cash. Hence, with the view of avoiding the use of these Tang-shih pieces, the paper currency was issued at Peking. Ten Cash in coin are considered equal to Twenty Cash in paper money.

In exchanges between Shanghai and Hong-Kong the exchange is sometimes quoted at a discount on Hong-Kong; thus, if the discount on Hong-Kong is quoted at 24 per cent.; the quotation means that Shanghai gives Hong-Kong (100—24 =) 76 Taels for 100 Dollars.

## RATE OF INTEREST.

At Canton the usual rate of interest is from 10 to 15 per cent. per annum. When no special agreement is made the rate is 12 per cent. The rate of interest charged by pawn-brokers is 3 per cent per month in summer and 2 per cent. in winter.

## HONG-KONG.

The denominations of money, in which all accounts, both public and private, are kept, are *Dollars* and *Cents*; but in statistical information furnished to the Mother Country (Great Britain) the amounts are stated in *Pounds*, *Shillings*, and *Pence* sterling.

<i>Hong-Kong value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Cent	= ½d.
100 Cents	= 1 Dollar	= 4s. 8d.*

\* The rate of 4s. 8d. above assigned to the Dollar is the Government par, or the rate at which the Dollar is issued in payment to the Navy, the Army, and the civil servants of the Crown in Hong-Kong and its dependencies, and also throughout China and Japan. This rate was fixed by a Proclamation approved by an Order in Council, dated 1st November, 1864. Previous to that date, the Government par was 4s. 2d. According to the calculation of Sir H. Robinson, some time Governor of Hong-Kong, the dollar is worth 4s. 7½d., and its true par in that Colony is about 4s. 4d. sterling.

## GOLD COINS.

Gold coins do not form a part of the legal circulation of the colony, and silver is the standard of value and the chief medium of commerce.

## SILVER COINS.

The silver coins are the *Mexican Dollar*, weighing 416 grains Troy of silver,  $\frac{2}{10}$ ths fine, and worth 4s. 2d. sterling; other *Silver Dollars* of equivalent value; and the *10 Cent Piece*, weighing 41.6 grains Troy, and worth 5 $\frac{1}{10}$ d. sterling. The Dollar is the only legal tender of payment for sums above two Dollars in Hong-Kong and its dependencies. The 10 Cent pieces contain each 80 parts of pure silver to 20 of alloy, and are a legal tender for any sum not exceeding two Dollars. They have for the obverse impression the effigy of Her Britannic Majesty crowned, with the inscription, "Victoria Queen," and for the reverse impression an inscription, indicating the value of the Piece, with the words "Hong-Kong," and the date of the year, and the same inscription repeated in Chinese.

## COPPER COINS.

The copper coins are the *Cent*, representing one hundredth part of a Dollar, and worth a little over  $\frac{1}{4}$ d. sterling; and the *Mil*, or *British Cash*, representing one thousandth part of a Dollar, and worth  $\frac{1}{10}$ d. sterling. Cents and Mils are a legal tender for payment of any sum not exceeding one Dollar.

The Cent has for the obverse impression Her Britannic Majesty's effigy crowned, with the inscription, "Victoria Queen," and for the reverse impression the inscription, "One Cent, Hong-Kong," with the date of issue, and the same inscription repeated in Chinese characters.

The Mil has a hole in the centre, and has for the obverse impression "V. R.," surmounted by a crown, with "Hong-Kong, One Mil," and the date of issue, and for the reverse impression the inscription Hong-Kong, one Cash or one Mil, represented in Chinese characters.

There are still in circulation considerable quantities of British silver and copper coins. These are exchanged by the Government for the new currency at a par of 4s. 2d. to the Dollar.

The free mint established at Hong-Kong for the Coinage of British dollars was closed in 1867, and when about to be removed to England it was purchased by the Japanese Government in 1868, and the machinery was set up at Osaka, the late master of the Hong-Kong mint and the requisite staff of officers being transferred with the mint to Osaka.

## INDIA.

In 1835 the Government remodelled the currency of India, and established a uniform system for all the presidencies. So that throughout Bengal, Bombay, and Madras, accounts are almost always kept in *Rupees*, *Annas*, and *Pies*, as follows :—

Indian value.	Systematic name.	Nominal English value.
	1 Pie	¼d.
12 Pies	= 1 Anna	= 1½d.
16 Annas	= 1 Rupee	= 2s. 0d.*

Silver is the universal standard of value, but gold coins are accepted as tokens representing a certain sum in silver, and a gold standard on a limited scale has been strongly advocated. The Government, in 1835, authorised the issue of the Gold Mohur, or 15 *Rupee Piece*, and the 10 and 5 *Rupee Pieces* as tokens—that is, as representing a certain sum in silver money; and by the law of the 28th October, 1868, No. 3,287, British and Australian Sovereigns and Half-sovereigns of legal weight and fineness were constituted a legal tender, as the equivalent of 10 Rupees and 4 Annas, and of 5 Rupees and 2 Annas respectively.

## SILVER COINS.

The silver coins are the *Rupee*, the *Half-Rupee*, the *Quarter-Rupee*, and the *One-eighth-Rupee*, or *Double-Anna*, worth respectively 2s., 1s., 6d., and 3d. sterling. Single Annas, each worth about 1½d. sterling, were minted in 1835, and for some time afterwards, but they have not been issued of late years. The *Double-Rupee*, worth about 4s. sterling, was authorised by the Government, but it has never been put into circulation.

The silver coins are all ½ths fine; they contain 220 parts by weight of pure silver to 20 parts of alloy. English standard silver contains 222 parts of pure silver to 18 of alloy. By English assay the silver coins of India would be reported 2w., i.e., 2 dwts. worse, or below the English standard.

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\* The intrinsic value of the Rupee is 1s. 10½d. sterling.

The Rupee weighs 180 grains, and contains 165 grains of pure silver and 15 grains of alloy. The weight of the other silver coins is proportionate to that of the Rupee. Taking the value of silver as 61d. per ounce troy of English standard (which contains 444 grains of pure silver) the average bullion value of the Rupee is about 22½d. or 22¾d, sterling, but for all ordinary purposes the value of the Rupee is taken at 2s., that of the Anna at 1½d., and that of the Pie at ½d. sterling.

A *Lac* of Rupees is 100,000 Rupees, and, reckoning the Rupee at 2s., is worth £10,000 sterling. A *Crore* of Rupees is 100 Lacs, or 10 millions of Rupees, and is worth 1 million sterling.

#### GOLD COINS.

The gold coins are the *Mohur*, equal to 15 Rupees, and worth about 80s. sterling; the *Double-Mohur*, equal to 80 Rupees, and worth about £8 sterling; the *Ten Rupee Piece*, equal to two-thirds of a *Mohur*, and worth about £1 sterling; the *Five Rupee Piece*, equal to one-third of a *Mohur*, and worth about 10s. sterling; British and Australian Sovereigns and Half-Sovereigns = 10 Rupees 4 Annas and 5 Rupees 2 Annas, respectively.

The gold coins of India are all of the standard of ⅓ fine, that is, they contain 11 parts (out of 12) of pure gold to 1 part of alloy. The *Mohur* weighs 180 grains troy, and contains 165 grains of pure gold to 15 grains of alloy. The other gold coins are in their proportion as to weight.

#### COPPER COINS.

The copper coins are the *Half-Anna*, weighing 200 grains troy, and worth a little less than 1d. sterling; the *Quarter-Anna*, weighing 100 grains troy, and worth a little less than ½d., and the *Pie*, weighing 83½ grains troy, and worth a little less than ¼d. sterling. In Bengal the *Quarter-Anna* is called a *Paisa* or *Pysa*.\*

In BOMBAY accounts are sometimes kept in *Rupees*, *Quarters*, and *Raes*. Thus:—

		1 Rae	=	1½d. sterling.
25 Raes	=	1 Anna	=	1½d. "
100 Raes	=	1 Quarter	=	5½d. "
4 Quarters	=	1 Rupee	=	1s. 10½d. "

In MADRAS accounts were formerly (and in some places are now) kept in *Pagodas*, *Fanams*, and *Cash*, as follows:—

80 Cash	=	1 Fanam	=	1½d.
45 Fanams	=	1 Star Pagoda	=	7s. 0d.

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\* Pronounced *piee*.

But in all the old Government accounts, the Pagoda was divided into 32 Fanams. The *Star-Pagoda* was always considered as  $3\frac{1}{2}$  Rupees. In some of the old Government accounts, the Pagoda was divided into 16ths, and  $\frac{1}{16}$ th of a Pagoda was equal to  $3\frac{1}{2}$  Annas. There were several kinds of Pagodas, but the British Star Pagoda was a gold coin weighing 52·66 grains. It was  $19\frac{1}{4}$  carats fine, and contained 42·7 grains of pure gold, which, at the English mint price of £3 17s. 10½d. per ounce, gives its value as 7s. 5¼d. sterling.

Previous to the year 1835 each Presidency had its own Rupee, and even at the present time the old coins are still met with. The *Sicca Rupee*, circulated in the lower provinces of Bengal; the *Furruckabad Rupee*, in the upper and north-western provinces; the *Arcot Rupee*, in Madras; and the *Bombay Rupee*, in Bombay. These were all  $\frac{1}{11}$ ths fine. The Madras and Bombay Rupees weighed each 180 grains; the Furruckabad, 179·16 grains; and the Sicca Rupee 191·916 grains. After two years circulation, the Sicca Rupee was called a *Sonaut* rupee (or coin of years) and was held to be 4½ per cent. inferior to the *Sicca* Rupee. Then after further circulation the *Sonaut* became the *Current* Rupee, which was held to be 6½ per cent. inferior to the *Sicca* Rupee. Hence *Sonaut Rupees* and *Current Rupees* gradually crept into accounts, although they had no *legitimate* representatives in the currency.

The present Rupee is equivalent to the Bombay, the Furruckabad, or the Sonaut Rupee, and to  $\frac{1}{11}$ ths of the Calcutta Sicca Rupee, and 16 of the present Rupees are equal to 15 Sicca Rupees, and 100 Siccas equal  $106\frac{2}{3}$  of the present Rupees.\*

In 1835 the ratio of gold to silver was fixed at 15 to 1. This was too low a valuation of gold, and consequently it did not come into circulation. The relative value of gold and silver in India at present is  $15\frac{1}{2}$  to 1.

In Bengal the term "gold Mohur" is often used in the sense of 16 Rupees. This is because the Mohur, previous to 1835, weighing 204·71 grains,  $\frac{1}{11}$ ths fine, was a legal tender for 16 Sicca Rupees.

In 1848 a distinct copper currency was introduced in the settlements of Penang, Singapore, and Malacca, to meet the want of a legal coin to represent, and to pass in Exchange for, fractions of the Spanish Dollar. This currency consists of the following coins: the *Cent*, weighing 144 grains Troy; the *Half-Cent*, weighing 72 grains Troy; and the *Quarter-Cent*, weighing 36 grains Troy.

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\* The Rupee struck in 1835 was, until 1862, stamped and called the "Company's Rupee." Since 1862 the stamp has been "Victoria" on one side, and "India" on the other.

CEYLON.

On the 1st January, 1872, a new monetary system was introduced. The basis of this system is the Rupee of India, of 180 grains weight and  $\frac{1}{11}$ ths fineness, with the decimal subdivisions of that coin ( $\frac{1}{2}$  Rupee or 8 Annas—50 Cents,  $\frac{1}{4}$  Rupee or 4 Annas—25 Cents,  $\frac{1}{8}$  Rupee or 2 Annas—12 $\frac{1}{2}$  Cents.

100 Cents—1 Rupee—2s. \*

	Weight in Grains.	Fineness.	Alloy.	Nominal English Value.
<b>SILVER COINS:—</b>				
Rupee ..	180	$\frac{1}{11}$	$\frac{1}{15}$	2s.
$\frac{1}{2}$ " ..	90	..	..	1s.
$\frac{1}{4}$ " ..	45	..	..	6d.
10 Cents .....	18	..	..	2 $\frac{1}{2}$ d.
<b>COPPER COINS:—</b>				
5 Cents .....	..	..	..	1 $\frac{1}{2}$ d.
2 " ..	..	..	..	$\frac{1}{2}$ d.
1 " ..	..	..	..	$\frac{1}{4}$ d.
$\frac{1}{2}$ " ..	..	..	..	$\frac{1}{8}$ or 1 challie

The *nominal par* of Exchange with London is 1000 Rupees, £100 currency, for £100 Sterling; but the *real par*, taking the Value of English Standard Silver at 5s. per ounce, is 1076 Rupees, or £107 12s. currency per £100 Sterling.

From the year 1825 to 1872 accounts were kept in Pounds, Shillings, and Pence local currency; and nominally the currency consisted of British Silver Coins (for sums below 40s.); Silver or Paper Rix Dollars at the rate of 1s. 6d. per Rix Dollar; Treasury notes in terms of British Sterling; English and Australian gold Sovereigns and Half Sovereigns; and British copper coins, as well as the copper coins of the Island. But British silver coins and silver Rix-dollars disappeared from circulation in a few years; the paper Rix-dollars and Treasury notes were called in and cancelled; and English and Australian gold coins were never in circulation, and when imported

\* The Imperial pay of the troops and of Civil and Military establishments in Ceylon is issued in rupees at the rate of 1s. 10 $\frac{1}{2}$ d. Sterling per rupee; the intrinsic value of the rupee at the present average price of silver, being 1s. 10 $\frac{1}{2}$ d. sterling; the difference between the nominal and intrinsic value of the rupee was taken into account by the Military Commission of 1865 in fixing the Colonial allowances granted to the troops and officers stationed in the Island.

were treated as merchandise, and sold generally at a premium varying from  $\frac{1}{2}$  to 10 per cent. Under these circumstances the Rupee of India, at the nominal rate of 2s. with its subdivisions, became the real metallic currency of the Colony. For the 35 years prior to 1872 the Pound of local currency was 10 rupees, and the coins that constituted the currency of Ceylon were as follows:—

	Decimal of Rupee.	Fraction of Rupee.	English value.
<b>SILVER COINS:—</b>			d.
Rupee ..	1	1	24
$\frac{1}{2}$ " ..	.5	$\frac{1}{2}$	12
$\frac{1}{4}$ " ..	.25	$\frac{1}{4}$	6
4 Penny piece	.166	$\frac{1}{6}$	4
2 Anna piece	.125	$\frac{1}{8}$	3
1 Fanam	.063	$\frac{1}{16}$ (or 1 Anna)	1 $\frac{1}{2}$
<b>COPPER COINS:—</b>			
1 Penny ..	.0416	* $\frac{1}{24}$ (or $\frac{1}{2}$ Anna)	1
2 Stivers or Pie ..	.0812	$\frac{1}{12}$	$\frac{1}{2}$
1 Halfpenny	.0208	$\frac{1}{6}$ (or $\frac{1}{4}$ Anna)	$\frac{1}{4}$
1 Stiver ..	.0156	$\frac{1}{8}$ (or $\frac{1}{8}$ Anna)	$\frac{1}{8}$
1 Farthing	.0104	$\frac{1}{12}$ (or $\frac{1}{6}$ Anna)	$\frac{1}{6}$
1 Challie ..	.0052	$\frac{1}{24}$	$\frac{1}{24}$

Previous to the year 1825 the public accounts were kept in Rix-dollars, Fanams, and Stivers or Pice (5 Pice = 1 Fanam; 12 Fanams = 1 Rix-dollar), the currency consisted of silver Rix-dollars, coined at the British Mint for the Colony, of copper Fanams (= 1 $\frac{1}{2}$ d.), Stivers or Pice, and Challies, and of inconvertible paper Rix-dollars, issued by the local Government. The Rix-dollar was issued to the troops and to all civil and military officers, whose pay was specified in British sterling, at the rate of 1s. 9d. The intrinsic value of the Rix-dollar of the coinage of 1821 at 5s. per oz. (British Standard), the then market price of silver, was only 1s. 5 $\frac{1}{2}$ d.

### GOA (In Portuguese India).

The chief money of account in Goa is the *Pardo*, which is divided into 4 *Good* or 5 *Bad Tangos*. It is also divided into 240 *Good* or 300 *Bad Reis*. The *Pardo* is equal to about 2s. 4d. sterling.

\* 8 Pie; † 4 Pie; ‡ 3 Pie 12 Pie.



## MALAYA.

The only native coin is the *Mon*, or *Zeni*, or *Piti*, or *Cash*. It is a piece of tin with a hole in the middle. In large transactions among the natives the precious metals pass current by weight. Foreign moneys, especially Spanish and Mexican Dollars, and the *Rupee*, *Half-Rupee*, and lower coins of India, are also accepted. Those in Malacca, Singapore, and Penang form the legal currency.

## BURMAH.

The chief monetary unit is a Tical or Kyat's weight of silver.

<i>Burmese value.</i>	<i>Systematic Name.</i>	<i>English Value.</i>
8 Small or 4 Great Rwehs } -	1 Bais (Tubes, Toques) -	1½d.
2 Bais	= 1 Mu's	= 8d.
2 Mu's	= 1 Math	= 6d.
4 Maths	= 1 Tical (Kyat)	= 2s. 0d.

There is also for money reckonings the decimal subdivision of the Tical, as in China.

The Tical, or Kyat, is a weight equal to 351 grains troy. Its value is generally reckoned at a Rupee of India, or rather the Rupee is generally accepted as a Tical. If the silver were of the purity of English standard, the Tical would be intrinsically worth about 2s. 8d. sterling, but the quantity of alloy in the precious metals in Burmah varies very considerably.

There are no coins, and large payments are made by means of gold and silver bullion by weight. Silver is the standard of value and the principal medium of payment. There are ingots of both gold and silver varying in size from a round cake, weighing from 268 Ticals, to very small pieces.

In small payments pieces of lead are also used. The value-relation of silver to lead is usually reckoned at about 1 of pure silver to 500 of lead. Occasionally, however, 15 Viss of lead are given for a Tical, but sometimes in cities a Tical is reckoned at 7 or 8 Viss.

## SIAM.

<i>Siamese value.</i>	<i>Systematic name.</i>	<i>English value.</i>
200 { Cowries } to { or } 450 { Bier }	= 1 P'hai-nung	= 1½d.
4 P'hai-nungs	= 1 Fuang	= 3½d.
2 Fuangs	= 1 Salung or Miam	= 7½d.
4 Salungs or Miam	= 1 Tical or Bat	= 2s. 6d.
4 Ticals	= 1 Tamlung	= 10s. 0d.
20 Tamlungs	= 1 Catty or Chang	= £10 0s. 0d.
100 Changs or Catties	= 1 Pecul	= £1000 0s. 0d.

Formerly *Cowries*, and kidney-shaped pellets in silver and gold, impressed with stamp, and of various sizes, formed the only medium of payment in Siam, but now there is a regular coinage.

## SILVER COIN.

The silver coin is the *Tical*, which weighs 236 grains Troy, and is worth about 2s. 6d. sterling. The device on one side is an elephant, and on the other something like three umbrellas standing one above the other.

The standard of purity of the new Tical is (I think) 900 parts of pure silver to 100 parts of alloy. Formerly the fineness was 9½ dwts. better than silver of the English standard.

## GOLD COINS.

Hitherto the Government has not issued any gold coins; but gold is received as payment by the *Tical* weight. 8 Siamese Ticals are equivalent to 5 Chinese Ticals.

Lately the Spanish Dollar, worth 4s. 2d. sterling, has become a very frequent medium of payment, especially with foreign merchants. Dollars are accepted in payment at the rate of 3 Dollars for 5 Ticals.

## PEWTER COINS.

The pewter coins are the *Half* and the *Quarter P'hai-nung*. These are used instead of Cowries for small change. They bear the same device as the Tical, and also an inscription in Siamese, Chinese, and English, stating their value.

## ANAM (or Cochin China.)

Accounts are commonly kept in *Quan*, *Mas*, and *Sapeks*, as follows:—

<i>Anamese value.</i>	<i>Systematic name.</i>	<i>English value</i>
	1 Sapek, or Dong, or Cash	= $\frac{1}{13}$ d.
60 Sapeks =	1 Mas, or Mottien, or heap	= 3 $\frac{1}{2}$ d.
10 Mas =	1 Quan, or String	= 2s. 9 $\frac{1}{2}$ d.

These values are calculated at the rate of 1 $\frac{1}{2}$  Quan for the Spanish Dollar, worth 4s. 2d. sterling.

Until a comparatively recent date there was no native gold or silver coinage in Anam, and the only coin was the *Sapek*, or *Dong*, or *Cash*, a piece of zinc of the same shape as the Chinese Cash, and like it, having a hole in the middle. 600 of these Sapeks form a Quan, or string, and are strung upon a piece of ratan and kept ready for use.

Sapeks form the chief medium of payment in all small transactions. For large transactions Ingots of gold and silver of various weights, and bearing the Government Stamp, are accepted in payment, although they are not considered coin. These have different names, and are as follows:—

## GOLD.

The *gold Ingot*, or *Loof* of 10 Taels' weight, and the *Half Ingot* or *Loof*, 5 Taels weight, worth respectively about £53 and £26 10s. sterling, and the *Dinh Vang*, or *Golden Nail* of 1 Tael, and worth about £5 6s. sterling.

## SILVER.

The *silver Ingot*, or *Nen-bac* of 10 Taels' weight and worth about £3 4s. sterling; the *Dinh-bac*, or *Silver Nail*, weighing 1 Tael, and worth about 6s., and the *Half-Dinh-bac*, or *Una-Dinh-bac*, and *Quarter-Dinh-bac*, worth respectively 3s. and 1s. 6d. sterling. The Spanish Dollar is in general use in foreign trade.

## SILVER COINS.

For the convenience of foreign merchants, a coinage of Dollars was issued in the year 1830; but these, although of the same weight as the Spanish Dollar, contain  $\frac{1}{2}$  their weight of copper, and their value is estimated at about 3s. 2 $\frac{1}{2}$ d. sterling.

## GOLD COINS.

For the same purpose there are in circulation *Gold Dollars*, *Half-Dollars*, and *Quarter-Dollars*, worth respectively about £2 10s., £1 5s., and 12s. 6d. sterling.

The Anamese gold and silver coins first issued were somewhat the shape of cakes of Indian ink, and had their value and the date of issue marked on them in raised letters. When new coins are issued the old ones are only taken at a considerable discount.

## PERSIA.

Silver is the standard of value in Persia and the denominations of money used in reckoning and keeping accounts are as follows:—

<i>Persian value.</i>	<i>Systematic name.</i>	<i>English value.</i>
50 Dinars	= 1 Shahi	= ¼d.
1000 Dinars or 20 Shahis	= 1 Keran	= 11½d.
10 Kerans	= 1 Toman	= 9s. 3½d.

## GOLD COINS.

The gold coins are the *Toman*, worth about 9s. 3½d. sterling, the 5 *Keran Piece*, worth about 4s. 7½d. sterling; and the 2 *Keran Piece*, worth about 1s. 10½d. sterling.

The Persian gold contains no alloy. A variable number of Shahis, per Toman, are charged for changing gold. The present rate is 2 Shahis per Toman.

## SILVER COINS.

The silver coins are the *Keran*, worth about 11½d. sterling, The *Half-Keran*, worth about 5½d. sterling, and the *Quarter-Keran* or 5 *Shahi Piece*, worth about 2½d. sterling.

There are no Billon coins in Persia.

## COPPER COINS.

The copper coins are the *Shahi*, worth about ¼d. sterling; the *Poul* equal to ⅓ of the *Shahi*, or 33⅓ *Dinars*, and worth about ⅓d. sterling; and the *Half-Poul*, worth about ⅙d. sterling, or a little less than an English farthing.

There are also the following foreign coins in circulation.

FOREIGN GOLD COINS.

<i>Systematic name.</i>	<i>Perisian value.</i>
Mejidie, or Turkish Lira	= *21 Kerans
Russian Half-Imperial	= *17 „ 12 Shahis
Dutch Ducat	= *10 „ 4 „

FOREIGN SILVER COINS.

The old silver coins and the present silver coins of Russia, viz., the *Mairah* or 80 *Copeck Piece*, and the 25, the 20, the 15, the 10, and the 7 *Copeck Pieces*. The 80 *Copeck Piece* is equal to 8½ *Kerans*, and the others in proportion.

ARABIA.

Accounts are kept in *Piastres* and *Caveers* (or *Cavears*) as follows:—

<i>Arabian value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 <i>Caveer</i>	= ½d.
80 <i>Caveers</i>	— 1 <i>Piastre</i> or <i>Mocha Dollar</i>	= †3s. 5d.

The Spanish Dollar is the chief medium of payment. It is received as equal to 1½ *Mocha Dollars*. The native coin of Arabia is the *Commasa*, a silver coin of a low standard purity, containing only 7 parts pure out of 24. The *Commasa* passes current as the ¼th part of the *Mocha Dollar*. Its English value would, therefore, be 1½d. sterling. It is only used in small payments.

JAPAN.

In 1871 a new monetary system, based upon a gold standard was introduced in Japan. The Yen, weighing 1½ grammes or 25·72 Troy grains of gold, ⅞ths fine, was constituted the fundamental unit of the system; the Yen is divided into 100 Sen, and the Sen into 10 Rin, as follows:—

<i>Japanese value.</i>	<i>Systematic name.</i>	<i>English value.</i>
10 Rin	= 1 Sen	= ½d.
100 Sen	= 1 Yen	= 4s. 2d.

\* The rate at which these coins are given and received in payment is subject to constant variation.

† This value is reckoned from the exchange of Spanish Dollars for Piastres, at the rate of 100 Spanish Dollars for 121½ Piastres.

	Standard fineness.	Weight in grammes of pure silver.	Standard weight of piece in Grammes.	Standard weight of piece in Troy Grains.	Allowance from standard fineness.	Allowance from standard weight.	English value.
<b>GOLD COINS :—</b>							
20 Yen .....	$\frac{9}{10}$ th ..	..	38 $\frac{1}{2}$	514.41			£ s. d. 4 3 4
10 „ .....	„ ..	..	16 $\frac{2}{3}$	257.20			2 1 8
5 „ .....	„ ..	..	8 $\frac{1}{3}$	128.60			1 0 10
2 „ .....	„ ..	..	3 $\frac{1}{3}$	51.44			0 8 4
1 „ .....	„ ..	..	1 $\frac{1}{3}$	25.72			0 4 2
<b>SILVER COINS :—</b>							
1 Yen* .....	„ 24.2	26.957	416.61				0 4 2
50 Sen .....	$\frac{8}{10}$ th 10	12.5	193				0 2 1
20 „ .....	„ 4	5.0	77.2				0 0 10
10 „ .....	„ 2	2.50	38.6				0 0 5
5 „ .....	„ 1	1.25	19.3				0 0 2 $\frac{1}{2}$
<b>COPPER COINS :—</b>							
1 Sen .....	.. ..	7.13	110				0 0 $\frac{1}{2}$
$\frac{1}{2}$ „ .....	.. ..	3.56	55				0 0 $\frac{1}{4}$
1 Rin .....	.. ..	0.90	14				0 0 $\frac{1}{8}$

Gold coins of each kind are a legal tender to any amount. The silver coins, except the 1 Yen piece, are subsidiary and are a legal tender for any sum not exceeding 10 Yen. The copper coins are a legal tender for any sum not exceeding 1 Yen.

Two systems of monetary accounts were in use in Japan prior to 1871. One was the Rio system, in which the denominations were *Ries*, *Itsiboos*, *Zenis*, or *Mongsengs*, and the other was the currency Nomme system, in which the denominations were the Nomme (equal to 58.24 Troy grains) of silver by weight, and its subdivisions and multiples. The latter system was based upon an uncoined currency, consisting of irregularly shaped pieces of silver of low standard, but bearing a Government stamp and passing by weight.

100 Zenis	=	1 Tempo	=	£ s. d. 0 0 0 $\frac{1}{2}$
(16 or) 17 Tempos	=	1 Itsiboo	=	0 0 4
4 Itsiboos	=	1 Rio	=	0 5 6

\* The 1 Yen silver piece is the silver coin of commerce, and is to be used in payment of import and export duties and all taxes at the open ports, and in transactions between Japanese and foreign merchants.

	Weight in		English value.
	Troy Grains.	Nomme.	
<b>GOLD COIN :—</b>			£ s. d.
Kobang, or Rio ..	51·25	·88	0 5 6
<b>GOLD AND SILVER COINS,</b>			
<b>MIXED :—</b>			
Niboo (or 2 boo piece)	98·184	1·6	0 2 9
Itsiboo-kin .. ..	46·592	0·8	0 1 4½
<b>SILVER COINS :—</b>		2·8	
Itsiboo .. ..	133·95		0 1 4⅓
Rio (or 4 boo piece) ..			
Nishu .. ..			0 0 8½
Ishu .. ..	29·12	·5	0 0 4½
<b>COPPER OR BRONZE</b>			
<b>COINS :—</b>			
Hachi-monseng ..			
Tempo .. ..	817·00		0 0 446
<b>IRON COINS :—</b>			
Zeni (or Monseng) ..			

The Rio, or Kobang, was a thin oval coin, soft, and easily bent, about 2 inches long, and 1 broad; it originally weighed a Tael. According to an assay made in the British Mint, in December, 1862, it contained 29·664 Troy grains of pure gold, 21·86 grains of silver, and ·192 of a grain of copper. The Kobangs in circulation prior to the year 1860, were between three and four times more valuable, both nominally and intrinsically.

The Niboo, or *Niboo-kin*, was an oblong coin composed of gold and silver mixed, it contained 20·384 Troy grains or ·35 nomme of gold, and 72·217 grains or 1·24 nomme of silver, its nominal value was 2 Itsiboos, or half a Rio.

The *Itsiboo-kin*, also composed of gold and silver mixed, was half the Niboo-kin.

The Itsiboo was an oblong rectangular silver coin; a great many Itsiboos were made of Mexican dollar silver, in the proportion of 811 Itsiboos to 100 dollars. The Itsiboo was the chief coin of the silver currency of Japan. It bore upon the upper part of the obverse a superscription, meaning "Certain, fixed," and upon the lower part, "Mint silver is always of this standard." The reverse was inscribed "*Itsiboo-kin*," ¼ of a

silver Tael. There were also in Nippon the *Ita-gone*, or money slip, and the *Kodama* : these were pieces of irregular weights, but stamped to indicate their fineness.

The Nishu was a silver-gilt rectangular coin ; its value was 2 Ishu, or half an Itsiboo, its weight was not material.

The Ishu was a small oblong silver coin, its nominal value was a quarter of an Itsiboo, but its real value was one-fifth of an Itsiboo.

The Zeni, or Mongseng, was a circular coin, almost wholly iron, with a square hole in the centre ; its nominal value varied from time to time ; sometimes 1,600 Zeni and sometimes 1,700 were reckoned to the Itsiboo.

The Hachi-monseng, or 8 Monseng piece, was a circular coin, composed of iron and copper mixed : it was the same coin as had formerly passed as a Shi-monseng, or 4 Monseng piece.

The Tempo,\* more properly called Töohiyaku, or Hiyakumong-zeni, or 100 Mongseng piece, was the highest copper or bronze coin ; it was a large oval coin with a hole in the centre ; it was composed of 81 parts of copper, 9 of tin, and 10 of lead ; it passed for 100 Zenis, 16 (or sometimes 17) Tempos went to the Itsiboo. The superscription on the obverse was "Current money of Tempo ;" on the reverse was the name "Töohiaku," with the imperial cypher below the hole.

#### BANK NOTES.

There was also a paper currency, consisting of Bank Notes for  $\frac{1}{2}$ ,  $\frac{1}{4}$ , and 1 Koban. *It-Kan*, or *String*, was a denomination of money used in colloquial reckoning, but not in regular accounts ; its value was about 9 Mace of silver, or about 1080 copper Mon-Zeni.

The Spanish Dollar was received at the bullion, and not at the coin, rate of value. The Dollar weighs about 71 $\frac{1}{2}$  Candareens, and this at the bullion rate is equal to about 160 Candareens, or  $\frac{1}{4}$  of a Tael, that is an *Itsiboo*. The Itsiboo was equal to 16 *Töohiaku* ; and the Dollar, which is about treble the weight of the Itsiboo and intrinsically worth 48 *Töohiaku*, was also received at 16 *Töohiaku*.

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\* So called from the *Nengo*, or reign (A.D. 1880-1848), in which it was first issued.



STRAITS SETTLEMENTS.

SINGAPORE, PENANG, AND MALACCA.

Accounts are kept in *Dollars* and *Cents* by some, and in *Rupees*, *Annas*, and *Pies* by others, but Government accounts rendered to the Home Authorities are made out in £ s. d. sterling.

<i>Singapore value.</i>		<i>Systematic name.</i>		<i>English value.</i>
100 Cents	=	1 Cent	=	¼d.
12 Pies	=	1 Dollar	=	4s. 8d.
16 Annas	=	1 Anna	=	1¼d.
		1 Rupee	=	1s. 11¼d.
1 Pie	=		=	·24 Cent
1 Anna	=		=	2·91 Cents
1 Rupee	=		=	46·5 Cents
10 Rupees	=	4 Dollars	=	65 Cents
100 Rupees	=	46 Dollars	=	50 Cents
1000 Rupees	=	465 Dollars	=	
		<i>Rupees.</i>	<i>Annas.</i>	<i>Pies.</i>
1 Dollar	=	2	2	4½
1 Cent	=	0	0	4½
100 Dollars	=	214	1	5
1000 Dollars	=	2147	6	0

Silver is the standard of value, and the Mexican Dollar is the chief current coin.

SILVER COINS.

The silver coins are Mexican and Spanish *Dollars*, *Rupees*, and *Half-Rupees*.

GOLD COINS.

There is no gold coinage; formerly both gold and silver circulated by weight; and a gold coin worth about 1s. 2d. sterling was once issued, but has long since disappeared.

COPPER COINS.

The copper coins are the *Cent*, the *Half-Cent*, the *Quarter-Cent*; Dutch and other *Doits*; and *Pies* of India.

\* In Penang the Dollar is sometimes divided into 20 Copangs, and each Copang into 5 Pice.

### JAVA.

The money of account of Java is the same as that of the Netherlands.

<i>Java value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Cent =	$\frac{1}{4}$ d.
100 Centen =	1 Guilder or Florin =	1s. 8d.

The Exchange value of Java money is less than that above given, being at the rate of 7 *Netherlands Guilders* for 8 *Java Guilders*. So that at that rate the value of the *Guilder* and *Cent* are respectively 1s. 5 $\frac{1}{4}$ d. and  $\frac{1}{7}$ d. sterling.

### SILVER COINS.

The silver coins are the *Florin* or *Guilder*, equal to 100 *Centen*, and worth nominally 1s. 8d., and in Exchange 1s. 5 $\frac{1}{4}$ d. sterling, the *Half-Guilder*, and the *Quarter-Guilder*, and the *Dime*, equal to 10 *Centen*, and worth nominally 2d., but in exchange 1 $\frac{1}{4}$ d. sterling.

### COPPER COINS.

The only copper coin is the *Cent*, worth  $\frac{1}{7}$ d. sterling; the old *Dott* is no longer in circulation.

### GOLD COINS.

Gold does not form any part of the legal currency of Java, but gold coins, and also silver coins of all nations are taken as articles of commerce. Some pieces of the now suppressed gold currency of Holland, such as the 10 *Guilder Pieces*, and the *Ducats*, and also *Dubloons* and English *Sovereigns*, are often met with.

### BANK NOTES.

The Java Bank at Batavia issues Notes for 1000, 500, 800, 200, 100, and 50 *Guilders* or *Florins*, and a Note of 25 *Florins*, exchangeable only for Silver.

### PHILLIPINE ISLANDS.

VIZ. :—LUZON OR LUCONIA, MINDORO, PANAY,  
NEGROS, MASBATE, ZEBU, BOHL, LEYTE,  
SAMAR, MINDANAO.

<i>Phillipine value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Cent =	$\frac{1}{10}$ d.
100 Cents =	1 Real =	2 $\frac{1}{2}$ d.
20 Reals =	1 Peso, or Hard Dollar =	4s. 2d.

Formerly accounts were kept in *Pesos* of 8 Reels of 12 Granos, but these denominations gave place to the divisions of the Pesos adopted in the mother country (Spain).

The currency consists of Spanish gold and silver coins. Mexican and South American Dollars are recoined into pieces of 1, 2, and 4 Dollars. The mint of Manilla buys gold, containing not less than 880 parts pure in 1000, at the rate of 4.22 Cents per Troy grain. In Mindanao the universal legal coin is the Chinese Kansang, a large Nankin piece. 25 Kansang = 1 Gantang = about 10 Spanish hard or Silver Dollars = £2. 1s. 8d. sterling.

## EGYPT.

<i>Egyptian value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Fuddah, or Para =	$\frac{1}{8}$ d.
40 Paras =	1 Piastre, or Ckirah =	2 $\frac{1}{2}$ d.

Egyptian money is considered to be of the same value as that of Turkey. The smallest Egyptian coin is the *Fuddah*. There are also pieces of 5, 10, and 20 Fuddah. The Dollar of Spain, Mexico, and South America, is also a constant medium of payment.

## GOLD COINS.

The gold coins are the *Saadeeyeh*, equal to 4 Piastres, and worth 10d. sterling, the *Kheyreeyeh*, equal to 9 Piastres, and worth about 1s. 10 $\frac{1}{2}$ d. sterling. Doubloons and British Sovereigns are also in circulation, and the coins of Turkey are a legal tender, but are seldom met with. There is besides a nominal money called a *Ryal*, equal to 4 $\frac{1}{2}$  Piastres, and worth about 10 $\frac{1}{2}$ d. sterling. The *Kees*, or *Purse*, is equal to 500, Piastres, and worth about £5. 4s. 2d. sterling. The *Khuzneh*, or *Treasury*, equal to 1000 *Purses*, is worth about £5208. 6s. 8d. sterling.

## TRIPOLI.

<i>Tripoli value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Para =	$\frac{1}{10}$ d.
40 Paras =	1 Piastre =	2 $\frac{1}{2}$ d.
20 Piastres =	1 Mahbub =	4s. 2d.

## TUNIS.

The denominations of money used in reckoning and keeping accounts are the *Piastre*, the *Karub* and the *Fel* as follows:—

<i>Tunis value.</i>		<i>Systematic name.</i>		<i>English value.</i>
		1 Fel	=	$\frac{2}{3}$ d.
3 Fels	=	1 Karub	=	$\frac{2}{3}$ d.
16 Karubs	=	1 Piastre	=	5 $\frac{1}{2}$ d.

## SILVER COINS.

The silver coins are the 5 *Piastre Piece*, worth 2s. 5 $\frac{1}{2}$ d. sterling, the *Piastre*, worth 5 $\frac{1}{2}$ d.; the *Quarter Piastre*, worth 11 $\frac{1}{2}$ d. sterling; the 2 *Karub Piece*, worth  $\frac{2}{3}$ d., and the *Karub*, worth  $\frac{1}{3}$ d. The three last coins are of a very low standard, and are rather billon than silver.

## COPPER COINS.

The copper coins are the *Karub* and the *Fel*.

## ALGERIA.

Since the Conquest of the country by France, in 1830, the denominations of money used in reckoning and keeping accounts have been *Francs* and *Centimes* (100 Centimes = 1 Franc) as in France (see France).

The currency of France has not yet altogether superseded the old system, and the native coins are still in circulation.

Formerly accounts were kept in *Budschus*, or *Buschus*, and *Musuhns*, or *Mozounahs*. The *Budschu* is the *Pataca* or Algerine *Piastre*, and the *Musuhn* is sometimes called a *Tomin*.

<i>Algerine value.</i>	<i>Systematic name.</i>	<i>French value.</i>		<i>English value.</i>
	1 Musuhn	= .0775 Francs	=	$\frac{2}{3}$ d.
24 Musuhn	= 1 Budschu	= 1 Franc 86 Cts.	=	1s. 5 $\frac{1}{2}$ d.

## GOLD COINS.

The *Tsechine*, or *Sultanine*, is worth 4 $\frac{1}{2}$  to 5 Budschus; but its value in relation to gold fluctuates. Its English value is from 6s. 6 $\frac{1}{2}$ d. to 7s. 3 $\frac{1}{2}$ d. sterling.

## SILVER COINS.

The *Buschu*, or *Budschu*, also called the *Pataca*, or *Piastre* of Algeria, is equal to 1 Franc 86 Centimes, and worth 1s. 5½d. sterling. The *Double-Budschu*, equal to 3 Francs 72 Centimes, and worth 2s. 11d. sterling. The *Half-Budschu*, equal to 98 Centimes, and worth 8½d. sterling. The *Quarter-Budschu*, equal to 46·5 Centimes, and worth 4½d. sterling. The *Three-Musuhn-Piece*, equal to 23·25 Centimes, and worth 2¼d. sterling.

## BILLON COINS.

The *Karubah*, or *Half-Musuhn-Piece*, equal to ·08875 of a Franc, and worth ⅓d. sterling.

## COPPER COINS.

The *Aspre-chique*, equal to the 29th part of a Musuhn.  
The Spanish Dollar is also in circulation at the rate of 70 Musuhns, or 5 Francs 85 Centimes.

## MOROCCO.

Accounts are kept in *Mitkuls*, *Ounces*, *Blankeels*, and *Flues*, as follows:—

Morocco value.		Systematic name.		English value.
		1 Flue	=	⅜d.
24 Flues	=	1 Blankeel	=	⅔d.
4 Blankeels	=	1 Ounce	=	8⅓d.
10 Ounces	=	1 Mitkul	=	8s. 1d.

54 Blankeels are considered equal to 1 Spanish Dollar.

## GOLD COINS.

Name of the coin.	Mitkuls.	Ounces.	Blankis.	Flues.	English value.
The Doubloon	= 24	1	0	0	= 64s.
„ Half-Doubloon	= 12	0	2	0	= 82s.
„ Quarter-Doubloon	= 6	0	1	0	= 16s.
„ Two-Dollar-Piece	= 3	0	0	12	= 8s.
„ Madrid, equal to } 10 Dollars	= 13	5	0	0	= 40s.

## SILVER COINS.

The Dollar	= 1	3	2	0	= 4s. 2d.
„ Half-Dollar	= 0	6	3	0	= 2s. 1d.
„ Quarter-Dollar	= 0	3	1	12	= 1s. 0½d.

## ABYSSINIA.

The moneys of account are as follows :—

<i>Abyssinian value.</i>	<i>Systematic name.</i>	<i>English value.</i>
8 Borjooks*	= 1 Kibear	= $\frac{1}{5}$ d.
10 Kibears	= 1 Divanis	= $\frac{2}{3}$ d.
4 Divanis	= 1 Harf	= $2\frac{1}{3}$ d.
28 Harfs	= 1 Pataka or Dollar	= 4s. 2d.
2½ Patakas	= 1 Sequin	= 9s. 4½d.

This country has no coinage of its own, and the current coins are chiefly Venetian Sequins, Spanish Dollars, and Imperial and Austrian Dollars. Since the British expedition to Abyssinia, in 1867-8, British Sovereigns and Indian Rupees have been in circulation. The Austrian Dollar is called a *Pataka*.

Large payments are usually made in gold ingots, weighed by the *Wakea*, an Abyssinian weight, equal to 400 troy grains English.

Small oblong pieces of salt, about 7 inches long, are also used as money. They are tied into bundles, and carried on the backs of mules into the interior; these pieces form an important part of the commerce of Abyssinia, and of the whole of North-Eastern Africa. Their value varies with the cost of transport, and the distance from the coast; about 80 of them are valued at a *wakea* of gold (400 grains troy).

Estimated in gold the value of the *Pataka* as money of account is at the rate of 12 *Patakas* for 1 *Wakea*.

## WEST COAST OF AFRICA,

VIZ.,

SIERRA-LEONE, THE GAMBIA, THE GOLD COAST (Cape Coast Castle), SENEGAL.

On the West Coast of Africa accounts are kept in *Pounds*, *Shillings*, and *Pence* sterling, as in Great Britain. At the *Gambia* some merchants keep their accounts in pounds, shillings, and pence sterling, others in pounds, shillings, and pence currency, calculating four dollars to the pound, or five

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\*Borjooks are glass beads of various colours, and are used for small payments.

shillings to the dollar, so that the pound currency equals 16s. 8d. sterling, and the shillings and pence currency in a like proportion, and others again keep their accounts in dollars and cents.

An Order in Council of 10th May, 1843, assigned the following rates to the undermentioned coins.

Doubloon of Spain, Mexico, and South America, 64s. sterling.  
 The 20 Franc Piece of France .. .. . 15s. 10d. ,,  
 Dollar of Spain, Mexico, and South America .. 4s. 2d. ,,  
 The 5-Franc-Piece of France .. .. . 8s. 10d. ,,

The currency consists of the above named coins, and of British gold, silver, and copper coins, at their full nominal value. But the chief medium of exchange, both on the Gold Coast and at the Gambia, has long been gold dust, valued at £4 per ounce, and as gold dust transmitted to England is worth, on an average, after deducting the usual charges for freight, insurance, and commission, about £3 12s. per ounce, the par of Exchange for bills upon England, at 3 days' sight, is generally quoted at 11½ premium; that is a bill upon England, for £90 would purchase 25 ounces of gold dust, equal to £100 currency.

## EAST COAST OF AFRICA,

VIZ.,

### MOZAMBIQUE.

Accounts are kept in *Reis*, 1000 Reis being termed, as in Portugal, a *Milreis*. The English value of a Milreis is about 1s. 9d. sterling.

## MAURITIUS.

The Government accounts are kept in *Pounds*, *Shillings*, and *Pence* sterling, as in Great Britain; but merchants and bankers reckon and keep their accounts either in *Dollars* and *Centimes*, or in *Dollars*, *Livres*, and *Sous*, as follows.

<i>Mauritius value.</i>		<i>Systematic name.</i>		<i>English value.</i>
		1 Cent.	=	¾d.
100 Cents	=	1 Dollar, <i>current</i>	=	8s. 10d.
		<i>or</i>		
		1 Sou	=	100d.
20 Sous	=	1 Livre	=	4½d.
10 Livres	=	1 Dollar	=	8s. 10d.

The Mauritius Dollar of account was valued in 1825 at 4s. sterling, but its present value is about 3s. 10d. sterling.

The currency of the Mauritius consists partly of the current coins of the United Kingdom of Great Britain and Ireland, but chiefly of the gold and silver coins of British India, and of the gold and silver coins of foreign states.

By a royal proclamation of 1st February, 1843, relating to the currency of the Mauritius, the following *British rates* were assigned to the coins specified.

## GOLD COINS.

	Value in Mauritius.	Value in			
		British sterling.			
	Dollars.	Cents.	£	s.	d.
Doubloon (of Spain, Mexico, and South America) .. .. } =	16	0	3	4	0
Gold Mohur (of India—coined since 1st September, 1835) } =	7	29½	1	9	2
20 Franc Piece (of France) .. =	3	95½	0	15	10

## SILVER COINS.

Dollar (of Spain, Mexico, and South America) .. .. . } =	1	4½	0	4	2
Rupee (of India coined since 1st Sept., 1835) .. .. . } =	0	45½	0	1	10
Five Franc-piece (of France) or one and two Franc-pieces to the same value, viz.: 5 Francs .. .. . } =	0	96½	0	3	10½

These rates are disregarded in business, and the Mauritius Dollar passes as two Rupees.

British gold and silver coins, although a legal tender to any amount, are very scarce, and the currency consists chiefly of the gold and silver coins of India.

## CAPE OF GOOD HOPE.

Since 1st January, 1826, all contracts for the Public Service have been made, and all accounts kept, in Pounds, Shillings, and Pence sterling. Previous to the year 1826 the moneys of account were Rixdollars, each Rixdollar containing 8 Schillings, and each Schilling containing 6 Stivers, and declared to be of the value of 48 full weighted Pennies of Holland. The



currency then consisted of inconvertible Paper Rixdollars, which were first issued in 1781, about 4s. per Rixdollar; but in 1825 this value had fallen to 1s. 5d. per Rixdollar. In 1826 British silver money was constituted a legal tender at the rate of 1s. 6d. sterling for a Rixdollar. In 1835 the outstanding Paper Rixdollar currency was made payable, or exchangeable, only at the Treasury, and in 1840 it was notified that no Rixdollar Notes would be accepted in payment or exchange after 31st March, 1841. And at this latter date the currency of the country became a metallic one, the old depreciated paper having been gradually withdrawn. Although the public accounts are all kept in Pounds, Shillings, and Pence sterling, the accounts of private persons are often still kept in the old denominations of Rixdollars Schillings, and Stivers, as follows:—

		1 Stiver	=	3d. sterling.
6 Stivers	=	1 Schilling	=	2½d. „
8 Schilling	=	1 Rixdollar	=	1s. 6d. „

The term Guilder is used to denote 6d. sterling.

The currency consists exclusively of British gold, silver, and copper coins. Spanish, Mexican, and South American Dollars and a few Indian Rupees are met with, but are not much in use as a circulating medium.

#### BANK NOTES.

There are Notes for £5 and upwards. At Cape Town and Graham's Town the average amount of notes in circulation is about £40,000.

#### ST. HELENA.

Accounts are kept in *Pounds, Shillings, and Pence* sterling. The currency of the island consists of British coins and of gold Doubloons of Spain, Mexico, and South America, valued at 64s. sterling, and of silver Dollars of Spain, Mexico, and South America, valued at 4s. 2d sterling.

#### CANADA.

In British North America accounts are kept sometimes in *Dollars and Cents*, and sometimes in *Pounds, Shillings, and Pence* currency, the word currency being used to distinguish those denominations from Pounds, Shillings, and Pence sterling of Great Britain.

By the Act 16 Vict. c. 158, the denominations of money in Canada are fixed as Pounds, Shillings, Pence, Dollars, Cents, and Mills, the Dollar being  $\frac{1}{4}$  of a Pound; the Cent,  $\frac{1}{100}$  of a Dollar, and the Mil  $\frac{1}{10}$  of a Cent. The Pound was held to be equivalent to 101.801 grains of standard gold. By the same Act the copper Penny of the United Kingdom was fixed as equivalent to 2 Cents, and the Half-Penny to 1 Cent.

<i>Canadian value.</i>	<i>Systematic name.</i>	<i>Sterling value.</i>	<i>Currency.</i>
	1 Mil	= $\frac{1}{20}$ d.	= 0d.
10 Mills	= 1 Cent	= $\frac{1}{2}$ d.	= $\frac{1}{2}$ d.
100 Cents	= 1 Dollar	= 4s. $\frac{1}{2}$ d.	= 5s.
<i>or,</i>			
	1 Penny	= $\frac{1}{2}$ d.	= .02 Cents.
12 Pence	= 1 Shilling	= 9 $\frac{1}{2}$ d.	= 20 "
20 Shillings	= 1 Pound	= 16s. $\frac{1}{2}$ d.	= 4 Dollars.

Although accounts are stated in Pounds, Shillings, and Pence currency, the Spanish dollar has always been the real measure of value and standard of comparison in monetary transactions. The difference between *sterling* and *currency* value arises from different valuations of the Dollar. In 1817 the nominal value assigned to the Spanish Dollar was 4s. 6d. sterling, and this valuation is implied in statements of the exchange between Great Britain and the United States, although the present Dollar contains 14 grains of fine silver less than the dollar of 1817. In Nova Scotia, and throughout North America generally, the value assigned to the Dollar has been 5s. currency, and the nominal par of exchange was computed by adding *one-ninth* to the old valuation of the Dollar at 4s. 6d., or a par of £111 $\frac{1}{9}$  Halifax currency for £100 sterling. But the value of the Dollar in sterling money is now only 4s. 2d., and the real par of Exchange is about £120 Halifax currency for 480 Dollars for £100 sterling, that is Halifax and Canadian currency is about 20 per cent. less valuable than British sterling, although the names of the moneys and their relations to each other are the same. The Pound currency is 4 Spanish Dollars, each Dollar being called 5s., but as the value of the Dollar is only 4s. 2d. sterling, £1 currency is equal to 16s. 8d. sterling.

By the Act passed by the Canadian legislature in 1841, the following rates in Canadian currency were assigned to the undermentioned coins.

## GOLD COINS.

Name of the Coins.	Value in Canadian Currency.		
	£	s.	d.
British Sovereign (20s.) .. .. .	1	4	4
Eagle of the United States, coined before July 1st, 1834, and weighing 11 dwts. 6 grs. .	2	13	4
Eagle coined since July 1st, 1834, and weighing 10 dwts. 18 grs. .. .. .	2	10	0
Gold Coins of France, and multiples and divisions thereof, in sums not less than £50 currency .. .. per ounce	4	13	1
Old Doubloon of Spain, Mexican, and Chilian Doubloon, and the parts thereof, in sums not less than £50 currency .. per ounce	4	9	7
Gold coins of La Plata and Columbia, in sums not less than £50 currency .. per ounce	4	9	5
Gold coins of Portugal and Brazil, in sums not less than £50 currency .. per ounce	4	14	6

## SILVER COINS.

Name of the Coins.	Value in Canadian Currency.		
	£	s.	d.
The British Crown (5s.) .. .. .	0	6	1
The British Shilling .. .. .	0	1	2½
Milled Dollar of Spain, the Dollar of the United States, and of the several States of Peru, Chili, Central America and Mexico, not weighing less than 17 dwts. 4 grs.	0	5	1
The Half-Dollar of the same nations and governments .. .. .	0	2	6½
The Quarter Dollar .. .. .	0	1	5
The Eighth of a Dollar .. .. .	0	0	7½
The Sixteenth of a Dollar .. .. .	0	0	3½

The Dollar and Half-Dollar are a legal tender to any amount.

Between Canada and Great Britain the par of Exchange is £121 13s. 4d. Canadian currency, for £100 sterling. In statements of the Exchange with England, the nominal valuation of the Dollar at 4s. 6d., and the Halifax valuation of 5s. are still employed. And as £121 13s. 4d. contains as many Dollars of 5s. each as £109 10s. of 4s. 6d. each, the par of Exchange

is stated as £109 10s., or 9½ premium. This will be better understood from the following figures:—

British sterling money .. .. .	£	s.	d.
	100	0	0
Premium .. .. .	9	10	0
	9)109	10	0
½ added to the valuation of the Dollar at 4s. 6d. .. .. .	12	8	4
Canadian Currency .. .. .	121	13	4

In the currency of Canada the same value is assigned to United States Dollars, as to the Dollars of Mexico and South America, but the latter contains 373 grains of pure silver, and is about the ½ per cent. better than the former, which contains only 371½ grains of pure silver. Hence the par of exchange so deduced would be £122 5s. 6d. currency for £100 sterling, or 10½ premium. Government Exchanges are quoted at so much sterling per Dollar, thus the Commissariat quotes Drafts at 4s. 2d. or 4s. 1½d. per Dollar, that is on being paid so many times 5s. currency it will grant *Bills* on the Lords of the Treasury for as many times 4s. 2d. or 4s. 1½d. sterling. In Canadian price lists British Sovereigns are quoted at a variable number of shillings currency (says 24s), thus the expressions, "4s. 2d. sterling per Dollar," "24s. currency per English Sovereign," "Exchange at 9½ per cent. premium," and "£100 sterling for £121 13s. 4d. currency," all mean the same thing. The circulating medium consists of coins of Great Britain and of the United States, and of Bank Notes for one dollar or five shillings currency, and for four dollars or one pound currency, there being no metallic currency in Canada corresponding to the currency values. Four British Shillings was called One dollar, so the shilling is valued at 25 cents currency.

## NOVA SCOTIA.

The denominations of money used in accounts are either *Dollars and Cents, or Pounds, Shillings, and Pence.*

<i>Nova Scotia value</i>	<i>Systematic name.</i>	=	<i>English value.</i>
	1 Cent	=	¼d.
100 Cents	= 1 Dollar	=	4s. 2d.
	<i>or,</i>		
	1 Penny	=	¼d.
12 Pence	= 1 Shilling	=	9¼d.
20 Shillings	= 1 Pound	=	16s. 0d.

By an Act passed by the Legislature of the Province, in the year 1842, the following rates in currency of Nova Scotia have been assigned to the undermentioned coins in circulation in Nova Scotia:—

GOLD COINS.

<i>Name of the Coins.</i>	<i>Value in Nova Scotia Currency.</i>		
	£	s.	d.
Doubloon (weighing not less than 415 grains) ..	4	0	0
American Eagle .. .. .	2	10	0
British Sovereign .. .. .	1	5	0

SILVER COINS.

Dollar of Mexico, South America, and the United States .. .. .	}	0	5	2½
English Crown (5s.) .. .. .				
English Shilling (1s.) .. .. .	0	1	3	
English Sixpence (6d.) .. .. .	0	0	7½	

For debts and obligations contracted in sterling money the Doubloon is a legal tender for 64s., the British Sovereign for £1, the Dollar \* for 4s. 2d. sterling; and all British silver coins are a legal tender up to, but not exceeding, 50s., at rates proportionate to that of the Sovereign. British copper Pence and Half-pence circulate as Penny and Half-penny Pieces currency, and are a legal tender up to, and not exceeding, 12d.

The par of exchange with England is now £125 currency for £100 sterling, or 12½ per cent. premium on the sterling money.

NEW BRUNSWICK.

Accounts are kept either in *Dollars* or *Cents*, or in *Pounds*, *Shillings*, and *Pence* currency.

<i>New Brunswick value.</i>		<i>Systematic name.</i>		<i>English value.</i>
		1 Cent	=	¼d.
100 Cents	=	1 Dollar	=	4s. 2d.
		<i>or,</i>		
		1 Penny	=	¼d.
12 Pence	=	1 Shilling	=	10d.
20 Shillings	=	1 Pound	=	16s. 8d.

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\* When of the full weight of 416 grains, and containing not less than 378 grains of pure silver.

The sterling value of any sum in New Brunswick currency may be approximately found by deducting *one-sixth* from the sum in New Brunswick currency.

The currency of New Brunswick consists of the following coins which circulate at the undermentioned rates assigned to them by law.

## GOLD COINS.

Name of the coin.	Value in New Brunswick currency.		
	£	s.	d.
English Sovereign .. .. .	1	4	0
United States Eagle .. .. .	2	10	0

## SILVER COINS.

Spanish, Mexican, South American, and United States Dollars .. .. .	0	5	0
English Crown (5s.) and its aliquot parts at proportionate rates .. .. .	0	6	0
English Shilling .. .. .	0	1	2½

In this table the American Gold Eagle, containing 232 grains of pure gold, is over valued with reference to the Sovereign containing 118 grains of pure gold, by about 1½ per cent., and should have been valued at £2 9s. 8d. currency.

The American Gold Eagle when issued from the commissariat chest at New Brunswick is (and has been since 1st May, 1864), rated at £2 2s. 1d. sterling.

## THE BERMUDAS.

Accounts are kept in *Pounds, Shillings and Pence*, sterling, as in Great Britain.

*Doublons* of Spain, Mexico, and South America, of not less weight than 17 dwts., 8 grs. troy, are current at the rate of 64s. sterling, and Dollars of the same countries, at 4s. 2d. sterling.

All taxes and revenue are received either in British sterling money, or its equivalent in Foreign coins.

## NEWFOUNDLAND.

Accounts are kept either in *Pounds, Shillings, and Pence* currency, or in *Dollars and Cents* as follows:—

<i>Newfoundland value.</i>		<i>Systematic name.</i>		<i>English value.</i>
		1 Penny	=	‡d.
12 Pence	=	1 Shilling	=	10d.
20 Shillings	=	1 Pound currency	=	16s. 8d.
		<i>or</i>		
		1 Cent	=	‡d.
100 Cents	=	1 Dollar	=	4s. 2d.

The coins in circulation are chiefly silver Dollars and British gold, silver, and copper coins. There are also Bank Notes of the Bank of British America, which has a branch at St. John's. The English shilling is received sometimes at 1s. 2d. and sometimes at 1s. 3d. currency, and the following are the average rates at which the undermentioned coins pass current.

## GOLD COINS.

<i>Name of the Coin.</i>		<i>Value in Newfoundland currency.</i>		
		£	s.	d.
Doubloon	=	8	16	9‡
British Sovereign	=	1	4	0

## SILVER COINS.

Dollar	=	0	5	0
British Crown (5s.)	=	0	6	0
„ Half-Crown	=	0	3	0
„ Shilling	=	0	1	0

But there are no *fixed* rates at which British and foreign coins circulate, and the values assigned to them in the currency of the colony are subject to constant variation.

The nominal value of the Dollar is 5s. currency. Its sterling value is generally estimated in the colony at 4s. 4d., while its real sterling value is 4s. 2d.

The par of exchange with England is reckoned at £115. 7s. 8‡d. for £100 sterling. On account of the over valuation of the Dollar in sterling money, Bills on England are usually at a premium of from 4 to 6 per cent.

## UNITED STATES OF NORTH AMERICA.

<i>American value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Cent	= $\frac{1}{4}$ d. } *
100 Cents	= 1 Dollar	= 4s. 2d. }

The unit of account is the *Dollar* (\$); although *Dollars* and *Cents* are practically the only moneys of account, there are the denominations *Dimes*, or *tenths*, and *Mills*, or *thousandths* of the Dollar. The Dime has its legal representative in a silver coin worth about 4.9d. sterling. There is no coin to represent the Mill.

	Full weight in Grains.	Fineness.	Weight of pure Metal in Grains.	English value
<b>GOLD COINS†--</b>				£ s. d.
Double Eagle = 20 Dollars	516	$\frac{9}{10}$ ths.	464 $\frac{1}{2}$	4 3 4
Eagle = 10 "	258	"	232 $\frac{1}{2}$	2 1 8
Half Eagle = 5 "	129	"	116 $\frac{1}{4}$	1 0 10
Quarter Eagle = 2 $\frac{1}{2}$ "	64 $\frac{1}{2}$	"	58 $\frac{1}{8}$	0 19 5
3 Dollar Piece .. .. .	77 $\frac{1}{2}$	"	69 $\frac{1}{8}$	0 12 6
1 Dollar Piece .. .. .	25 $\frac{1}{2}$	"	23 $\frac{1}{8}$	0 4 2
<b>SILVER COINS--</b>				
Dollar .. .. .	412 $\frac{1}{2}$	"	371 $\frac{1}{2}$	0 4 2
Half Dollar .. .. .	192	"	172 $\frac{1}{2}$	0 2 1
Quarter Dollar .. .. .	96	"	86 $\frac{1}{2}$	0 1 0 $\frac{1}{2}$
Dime = $\frac{1}{10}$ Dollar .. .. .	38 $\frac{1}{2}$	"	34 $\frac{1}{10}$	0 0 5
Half Dime = 5 Cents .. .. .	19 $\frac{1}{2}$	"	17 $\frac{1}{10}$	0 0 2 $\frac{1}{2}$
3 Cents .. .. .	12 $\frac{1}{2}$	$\frac{8}{10}$ ths.	9 $\frac{1}{10}$	0 0 1 $\frac{1}{2}$
<b>NICKEL COINS--</b>				
5 Cents .. .. .	.....	.....	.....	0 0 2 $\frac{1}{2}$
3 Cents .. .. .	.....	.....	.....	0 0 1 $\frac{1}{2}$
<b>COPPER COINS--</b>				
Cent (88 parts copper & 12 nickel)	.....	$\frac{88}{100}$ ths.	.....	0 0 0 $\frac{1}{2}$
Half Cent .. .. .	.....	.....	.....	0 0 0 $\frac{1}{4}$

\* These are the values of the Gold and Silver money.

† In 1868 a Bill was introduced in Congress for assimilating the gold currency of the American Union to that of the French system, but it never became law. In February, 1870, the Senate adopted a resolution requesting the President to invite correspondence with Great Britain and other powers, with the view to promote the adoption, by the Legislatures of the several powers, of a common standard of international coinage.



## BANK-NOTES.\*

100, 50, 20, 10, 5, 1 dollars; and "fractional currency notes," viz., 50, 20, 3 cents.

## COURSE OF EXCHANGE.

The course of exchange on London is stated to be above or below par, as the rate exceeds or falls below  $9\frac{1}{2}$  per cent.,  $9\frac{1}{2}$  per cent. being called par of exchange. In this statement the British sovereign is estimated at 4 dollars 44 cents in American gold. By Act of Congress of 2nd April, 1792, the weight of the American gold eagle was fixed at 270 troy grains of gold  $\frac{11}{16}$ ths fine. It was at that time a legal tender for ten dollars, the British sovereign being at the same time a legal tender for 4 dollars 44 cents. By Act of Congress of 1st July, 1834, the weight of the eagle was reduced to 258 troy grains, and its fineness to  $\frac{9}{16}$ ths, but was still maintained a legal tender for ten dollars. This change in the value of the American coins placed the British sovereign at a premium of  $9\frac{1}{2}$  per cent. as compared with the American coins, and gave rise to the present manner of quoting the course of exchange—viz., expressing it in terms of a percentage upon an assumed par of 4s. 6d. sterling per dollar. The true par stated in this form is  $9\frac{1}{2}$  per cent. premium or £109 10s. in dollars valued at 4s. 6d. each for £100 in British sterling money. When the premium is above  $9\frac{1}{2}$  per cent. the exchange is in favour of England, when it is below  $9\frac{1}{2}$  per cent. it is in favour of America. To calculate the rate of a sterling bill payable in United States paper currency (greenbacks): multiply the par of exchange, or gold rate for sterling (109.5) by the price of gold and divide by 100; multiply the quotient by 240 and

\* Previous to the Civil War all the American Banks redeemed their notes with coin on demand, but since the year 1861 they have all been permitted to suspend specie payments for an indefinite time, and their notes have consequently been at a heavy discount. On the 25th February, 1862, Congress passed the Legal Tender Act, authorising the issue of United States' notes, or, as they were afterwards called, "greenbacks," and the Act declared that such notes "shall be lawful money and a legal tender in payment of all debts, public or private, within the United States, except duties on imports and interest" upon the bonds and notes of the Federation. Previously the only legal tender was the gold dollar, and its multiples. The notes issued under the provisions of the Legal Tender Act increased in amount during the continuance of the Civil War until at last the total issued was nearly 450,000,000 dollars. In 1864 the value of the paper dollar had fallen to 85 or 40 cents., but after the War it gradually rose until in 1871 it reached 80 or 83 cents. That is, at the latter date, the value of gold was still from 17 to 20 per cent. above United States' notes or greenbacks. In February, 1870, the supreme court of the United States declared that Congress had no power to make United States' notes or greenbacks a legal tender for debts in existence at the time of the passing of the Legal Tender Act, thus establishing the principle that specific contracts to pay coin are valid, such debts being recoverable in coin, and that all debts contracted prior to the date of the Act, are payable (principal and interest) in coin.

divide by 54, or multiply by 40 and divide by 9. Then State £100 : Sterling bill : : currency of £100 : currency required. Example.—Where the price of gold at New York is 180, and the rate for sterling is 109.5 what is the value of a sterling bill of £1,500 payable in United States currency?

109.5
180
-----
32.850
1,09 5
-----
142,850 dollars of 4s. 6d. for £100 sterling.
40
-----
9)569,400

632.66 dollars for £100 sterling.

100 : 1,500 : : 632.66 : 9489.9 dollars for £1,500 sterling.

### MEXICO.

Accounts are kept in *Dollars and Cents*, as follows :—

<i>Mexican value.</i>	—	<i>Systematic name.</i>	=	<i>English value.</i>
		1 Cent		¼d.
100 Cents	=	1 Dollar	=	4s. 2d.

	Full weight in Grains.	Finance.	Weight of Pure Metal.	Grs. Alloy.	English Value.
<b>GOLD COINS :—*</b>					
Doubloon (16 dolls.)	417 $\frac{1}{7}$	$\frac{1}{3}$ ths	364 $\frac{2}{3}$	52 $\frac{2}{3}$	£ s. d. 3 6 8
½	208 $\frac{2}{7}$	"	182 $\frac{2}{3}$	26 $\frac{2}{3}$	1 13 4
¼	104 $\frac{2}{3}$	"	91 $\frac{2}{3}$	13 $\frac{2}{3}$	0 16 8
<b>SILVER COINS :—*</b>					
Dollar	417 $\frac{1}{7}$	$\frac{10}{12}$ ths	392	25	0 4 2
½	208 $\frac{2}{7}$	"	196	12 $\frac{1}{2}$	0 2 1
¼	104 $\frac{2}{3}$	"	98	6 $\frac{1}{2}$	0 1 0 $\frac{1}{2}$
¼ (real)	52 $\frac{2}{3}$	$\frac{9}{12}$ ths	39	13	0 0 6 $\frac{1}{2}$
Peseta (20 cents.)	83 $\frac{1}{7}$	"	62	21	0 0 10
<b>COPPER COINS :—</b>					
Quartillo ( $\frac{1}{8}$ dollar)					0 0 1 $\frac{2}{3}$
Octavo (or Claco)					0 0 0 $\frac{1}{3}$

\* The gold coins at the rate of 8½ doubloons, and the silver coins at the rate of 8½ dollars to the castile mark (— 8550½ troy grains.)

Dollars and half-dollars contain 10½ parts, and pesetas and reals 9½ parts pure out of 12, but pesetas and reals of Bolivia contain only 8 parts pure out of 12.

Money of account may have reference either to these small silver coins of lower standard, or to the Hard Dollars. If reckoned in the small base coins its value is less than it would be if reckoned in Hard Dollars.

## CENTRAL AMERICA, or GUATIMALA.

GUATIMALA, SALVADOR, NICARAGUA, HONDURAS, AND COSTA RICA.

The currency and the moneys of account are the same as those of Mexico. In 1869, Guatemala and Salvador commenced to re-coin the cut money circulating in them; and Honduras established a national coinage in imitation of the United States.

## WEST INDIES. (British.)\*

In most of the West India Islands accounts are kept in Pounds, Shillings, and Pence sterling, as in Great Britain, but sometimes they are kept in Dollars and Cents, as follows:—  
100 Cents = 1 Dollar = 4s. 2d. English.

### GOLD COINS.

English *Sovereign* and *Half-Sovereign*; Spanish, Mexican, and Columbian Doubloons, current at 64s. sterling each (or 15·86 Dollars); United States Eagle, current at 41s. 8d. sterling; the Half-Eagle, at 20s. 10d. sterling; Quarter-Eagle, at 10s. 5d. sterling; Two Dollar Piece, at 8s. 4d.; Dollar, at 4s. 2d. sterling; and Quarter Dollar, at 1s. 0½d. sterling.

### SILVER COINS.

Crown (5s.), Half-Crown, Florin, Shilling, Sixpence, Fourpence, Threepence, Twopence, Quattie (1½d.), Dollar (4s. 2d.), Half-Dollar (2s. 1d.), Quarter-Dollar (1s. 0½d.)

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\* The British West Indies include Jamaica; the Windward Islands, viz., Trinidad, Tobago, Grenada, St. Vincent, Barbadoes, and St. Lucia; the Leeward Islands, viz., Dominica, Montserrat, St. Kitts, Antigua, Nevis, Anguilla, Barbuda, and the Virgin Islands; the Bahamas; the Bermudas; Demerara, Berbice and Essiquibo, and Honduras.

The Doubloon is a legal tender, at the value of 64s., and the Dollar at the rate of 4s. 2d. sterling, and gold and silver coins of Great Britain are a legal tender to any amount at the rates current in Great Britain.

### BRONZE COINS.

The bronze coins of Great Britain, although nominally a legal tender, are not in general circulation. The lowest coin in general use is the Quattie. There is a great want of coins of low value which the working people would accept; and pieces of 1, 2, 5, and 10 Centimes in Nickel would be very likely to be accepted by the lower orders.

Previous to the year 1838 the currency of the West Indies was on a very unsatisfactory footing. Accounts were kept either in Pounds, Shillings, and Pence, currency, or in Dollars and Cents, and to these denominations, arbitrary values were assigned which varied in the different islands. From the over-valuation of the gold coins in circulation relatively to those of silver, the Spanish Dollar had almost wholly disappeared from circulation; mutilated coins or parts of coins had been substituted, and there was even a difficulty in retaining these latter in sufficient quantity to meet the wants of domestic interchange. The want of small silver coins for the ordinary transactions of the market led to the practice of cutting Silver Dollars into "Bitts," nominal values in the currency of the islands being assigned to those Bitts. The number of Bitts reckoned equal to a Dollar, varied at different places; thus at Dominica, Nevis, Montserrat, St. Kitts, Antigua, and Demerara, 12 Bitts, at Barbadoes 10 Bitts, and at Trinidad 9 Bitts, were reckoned equal to a Dollar.

A Royal Proclamation, dated 14th September, 1838, fixed the British sterling value of the Doubloon and Dollar respectively at 64s. and 4s. 2d. sterling. Immediately after that Proclamation the Governors of the several islands determined the colonial currency rates at which the Doubloon, the Dollar, and the British Shilling were to be a legal tender. These rates were as follows:—

	Doubloon.			Dollar.		British Shilling.	
	£	s.	d.	s.	d.	s.	d.
Jamaica .. .. .	5	6	8	6	11½	1	8
Barbadoes .. .. .	5	0	0	6	6	1	6½
Trinidad, Grenada, St. Vincent, Dominica .. .. .	8	0	0	10	5	2	6
Montserrat, St. Kitts, Antigua, Nevis .. .. .	7	4	0	9	4½	2	3

**WEST INDIES. (Spanish.)**

CUBA, PORTO-RICO, AND THE ISLETS OF MARGARITA, TESTIGOS, TORTUGA, BLANQUILLA, ORCHILLA, BOCA, AND AVES.

The denominations of money in which accounts are kept are the same as those of Spain. (See Spain.)

The current coins are gold *Doublions* and silver *Dollars* and their subdivisions.

**WEST INDIES. (Dutch.)**

VIZ.,

BONAIRE, CURACOA ORUBA, ST. MARTIN, SABA, AND ST. EUSTATIUS.

The money, weights, and measures are the same as those of the Netherlands.

**WEST INDIES. (Danish.)**

VIZ.,

ST. THOMAS, ST. JOHN, ST. CROIX.

The money, weights, and measures are the same as those of Denmark.

**WEST INDIES. (Swedish.)**

VIZ.,

ST. BARTHOLOMEW.

The money, weights and measures, are the same as those of Denmark.

**HAYTI (or Hispaniola, or St. Domingo.)**

Accounts are kept in current *Dollars* (called *Gourdes*) and *Cents*.

<i>Haytian value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Cent	= $\frac{1}{32}$ d.
100 Cents	= 1 Gourde, or Dollar	= $3\frac{1}{4}$ d.

The native currency consists of Depreciated Paper Gourdes, and of copper coins.

The value of the Paper Gourde is very fluctuating. It may be taken, however, at about 16 Haytian Gourdes or Dollars for 1 Spanish Dollar. This would give 3½d. sterling as the English value of the Paper Gourde, or about 77 Gourdes for £1 sterling.

The chief medium of payment in all small transactions is copper money, consisting of 1 and 2 *Cent Pieces*.

Some old silver pieces of 25 and 50 Cents (called *Gourdins*) and of 2½ cents are still in circulation. Their value is four times that of the paper money, the 25 Cent Piece being equal to 1 Paper Gourde.

In large commercial dealings with foreign countries the chief medium of payment consists of Spanish, Mexican, and South American gold Doubloons and silver Dollars, and their subdivisions. The Doubloon = 64s. and the Dollar = 4s. 2d. sterling.

## COLOMBIA (United States of).

VIZ.,

NEW GRANADA, VENEZUELA AND ECUADOR.

In wholesale commercial transactions, merchants reckon in *Dollars of 9 Reals*, or 10 *Decimos*, or 100 *Centavos*, but generally in practice only two denominations, namely Dollars and Centavos, are used in keeping accounts.

<i>Colombian value.</i>	<i>Systematic name.</i>		<i>English value.</i>
	1 Centavo	=	½d.
100 Centavos =	1 Peso	=	4s. 2d.

In domestic trade retail dealers and shopkeepers are in the habit of reckoning by the *Sencillo* or *Macuquina Peso*, divided into 8 Reals, thus:—

8 Reals = 1 Sencillo, or Macuquina Dollar = 8s. 4d.

The Macuquina or Peso Dollar is a coin of an inferior standard of fineness, and is equal in value to about ¾ths of a Spanish or an American Dollar; so that 4 Spanish or American Dollars are equal to 5 Macuquina Dollars.

Colombia having no special coinage of her own uses the currencies of other countries, assigning thereto definite rates.

GOLD COINS.

		£	s.	d.
Doubloon of Spain and America	= 16 Dollars	-3	6	8
Half ditto	" " " = 8 "	-1	13	4
Quarter ditto	" " " = 4 "	-0	16	8
French 20 Franc Piece	= 4 "	-0	16	8
" 10 " "	= 2 "	-0	8	4
" 5 " "	= 1 "	-0	4	2
English Sovereign	" = 4 " 80 Cntvs.	-1	0	0
" Half-Sovereign	" = 2 " 40 "	-0	10	0

SILVER COINS.

Dollar of Spain and America	= 1 Dollar	-0	4	2
English Crown (5s.)	= 1 " 20 Centavos	-0	5	0
" Half-Crown (2s. 6d.)	= 0 " 60 "	-0	2	6
" Florin (2s.)	= 0 " 48 "	-0	2	0
" Shilling	= 0 " 24 "	-0	1	0
French Five Franc Piece	= 1 "	-0	4	2
" Two Franc Piece	= 0 " 40 "	-0	1	8
" Franc	= 0 " 20 "	-0	0	10
Dutch 2½ Gulden Piece	= 1 "	-0	4	2
" Guilder	= 0 " 40 "	-0	1	8

COPPER COINS.

The Centavo and the Half-Centavo, equal respectively to ¼d. and ½d. sterling, are the nominal copper coins, but all copper moneys of equal value are accepted, such as the French 5 Centime Piece, the English Half-penny, and the American Cent.

GUIANA. (British.)

Guiana.	Systematic name.	English Value.
	1 Cent =	¼d.
100 Cents =	1 Dollar =	4s. 2d.

GOLD COINS.

English *Sovereigns* and *Half-Sovereigns* at their full nominal value; Spanish, Mexican, and South American *Dobloons*, at the rate of 64s. sterling each, and United States *Eagles*, *Half-Eagles*, *Quarter-Eagles*, and *Gold Dollars* at the respective rates of 41s., 20s. 6d., 10s. 8d., and 4s. 1d. sterling.

## SILVER COINS.

The silver coins of Great Britain are in circulation, as also *Dollars of Spain, Mexico, and South America.*

Previous to the year 1839 accounts in British Guiana were kept in *Guilders, Stivers, and Pfennings.*

			<i>English Value.</i>
16 Pfennings	=	1 Stiver	= $\frac{1}{4}$ d.
20 Stivers	=	1 Guilder	= 1s. 1 $\frac{1}{2}$ d.

The Current coins were tokens of various denominations, from 3 Guilder Pieces downwards, coined at the British Mint; of British silver coins at the rate of 14 Guilders for 20 shillings sterling, and of Mexican and South American Dollars. In 1839 Dollars and Cents were established as the legal moneys of account; there were no rates fixed by law for the Doubloon and the Dollar; but the old currency was converted into Dollars at the rate of 3 Guilders for a Dollar. The local government paper currency, consisting of *Joe* notes and *Half-Joe* notes (the *Joe* being equal to 22 guilders), was at the same time rendered convertible into specie of the Dollar currency at the same rate of 3 Guilders for a Dollar.

In order to meet the wants of the negroes and the labouring peasantry, who were in the habit of computing by *Bitts*, that is fractional parts of the currency, the Dollar was declared equal to 12 $\frac{1}{2}$  *Bitts*, the Shilling to 3 *Bitts*, and Fourpenny Piece to 1 *Bitt* and the Twopenny Piece to *Half-a-Bitt*.

## BANK NOTES.

There are notes (of the British Guiana Bank and of the Colonial Bank) for 5, 10, and 20 Dollars. These are payable in silver on demand.

## CAYENNE (or French Guiana).

Money, weights and measures, same as those of France.

## SURINAM (or Dutch Guiana).

Money same as the Netherlands.

## BRAZIL.

<i>Brazilian value.</i>		<i>Systematic name.</i>		<i>English value.</i>
		1 Rei	=	$\frac{1}{100}$ d.
1000 Reis	=	1 Milreis (1\$000)	=	2s. 0d.

The only denomination of money used in accounts is the *Rei*, with the same system of notation of thousands, millions, and thousands of millions, as in Portugal.



The circulating medium consists of an inconvertible Paper currency, greatly depreciated, and of an irregular and debased copper coinage.

#### PAPER MONEY.

The paper money consists of Treasury Notes for a *Milreis* and upwards. When first issued this paper money was equal to specie in value, thus a 960 *Reis Note* was equal in value to a 8 *Patacon Piece*, or Brazilian Silver Dollar (a Spanish Dollar restamped). Taking the Brazilian Dollar (960 *Reis*) at 4s. 2d. sterling, the original value of a paper *Milreis* (1000 *Reis*) at that rate was 4s. 4 $\frac{1}{2}$ d. sterling. In like manner a note for 4000 *Reis* was originally equal to a gold *Moeda* of 4000 *Reis*.

Before the introduction of the paper currency, the chief media of payment were the gold *Moeda* of 4000 *Reis*, and the silver Dollar of 960 *Reis*.

The value of the *Moeda* in the paper currency is about 7800 *Reis*, and that of a Dollar about 1620 *Reis*. So that at that rate the value of a *Milreis* in the paper currency is about 2s. 6d. sterling.

#### COPPER COINS.

The copper coins are pieces of 10, 20, and 40 *Reis*.

### PERU.

Accounts are kept in *Pesos*, or *Dollars*, and *Centesimos*, as follows:—

<i>Peruvian value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Centesimo	= $\frac{1}{100}$ d.
100 Centesimos	= 1 Dollar*	= 8s. 1d.

The actual coined Dollar is, as in Spain, equal to the 19th part of a gold Doubloon; but the Dollar of Account, also called the Current Dollar, a denomination used in commercial reckonings is equal to  $\frac{1}{19}$ th part of a Doubloon, and is therefore 6 $\frac{1}{2}$  per cent, less valuable than the coined Dollar.

The coins hitherto current in Peru have been gold Doubloons and their subdivisions, and the depreciated subdivisions of the Bolivian Dollar.

By the law of 2nd October, 1857, it was ordered that the following coins should be struck.

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\* This value is taken from the quoted exchanges, and refers to the old currency of Bolivian Dollars.

## GOLD COINS.

		<i>Weight in grains.</i>	<i>Fineness.</i>
Sonne	(20 Dollar Piece)	569	$\frac{9}{10}$ ths
Half-Sonne	(10 " " )	284½	"
Doubloon	(5 " " )	142¼	"
Crown	(2 " " )	56 $\frac{9}{10}$	"
Half-Crown	(1 " " )	28 $\frac{9}{16}$	"

## SILVER COINS.

Dollar	(100 Centesimos)	475	"
Half-Dollar	(50 " )	237½	"
Peseta	(20 " )	95	"
Dinero	(10 " )	47½	"
Half-Dinero	(5 " )	23¾	"

## COPPER COIN.

1 Centesimo Piece.

It has been recently announced that the Government of Peru has made arrangements for introducing a new standard national coinage. All Bolivian coin will be sent out of the country or melted in Lima within two years (from 1864).

## CHILI.

The denominations of money in which accounts are kept are *Pesos* current, and *Centavos*, i.e., *Dollars* current and *Cents*, as follows:—

<i>Chilian value.</i>		<i>Systematic name.</i>		<i>English value.</i>
		1 Centavo	=	$\frac{1}{10}$ d.
100 Centavos	=	1 Dollar or Peso current	=	8s. 9l.

The current coins of Chili since 1851 have been as follows:—

## GOLD COINS.

The Condor	=	10 Dollars*	=	£1 17s. 6d.
Doblon	=	5 Dollars	=	18s. 9d.
Escudo	=	2 Dollars	=	7s. 6d.

The gold coins are all  $\frac{9}{10}$ ths fine. The Condor weighs 15.253 grammes, the Doblon 7.626 grammes, and the Escudo 3.051 grammes.

\* 100 Dollars in silver are reckoned equal to 107½ Dollars in gold.

## SILVER COINS.

The Dollar	(weighing 25 grammes)	=	8s.	9d.
Half-Dollar	{ " 12½ "	}	=	1s. 10½d.
Piece of 20 Centavos	{ " 5 "		=	9½d.
" " 10 "	{ " 2½ "		=	4½d.
" " 5 "	{ " 1½ "		=	2½d.

The silver coins are also  $\frac{9}{10}$ ths fine.

## COPPER COINS.

The copper coins are the *Centavo*, worth about  $\frac{1}{10}$ d. sterling, and the *Half-Centavo*, worth about  $\frac{1}{20}$ d. sterling, or a  $\frac{1}{4}$ d. and  $\frac{1}{8}$ d. respectively.

The following foreign coins are also current at the under-mentioned rates:—

Pillar Dollars	at 8 per cent. premium.
Other dollars	at 7 " " "
English Sovereign	at about 5½ Dollars.
French 20 Franc Piece	" 4½ "
American Eagle	" 11 "

The old national Dollar of Chili, issued prior to 1851, was coined at the rate of 8½ Dollars to the Castilian Mark (= 8850½ Troy grains) of silver of the fineness of 10½ Dineros, that is, 10½ parts pure out of 12. It weighed 417·7 Troy grains, contained 374·19 Troy grains of pure silver, and was valued at 4s. 2d. sterling. This was likewise the standard of the Spanish Dollar, and of the Dollars of all the South American Republics, except Columbia.

## BOLIVIA.

Accounts are kept in *Dollars* and *Centenas* as follows:—

<i>Bolivian value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Centena	= $\frac{1}{10}$ d.
100 Centenas	= 1 Dollar	= 8s. 1d.

## COINS.

The current coins are gold Doubloons and silver Dollars and their subdivisions. The Bolivian Silver Dollar, when of the full weight of 417½ Troy grains, and of the fineness of 10 dwts. 20 grains in 12 dwts. (that is,  $\frac{7}{8}$  pure), is worth 4s. 2d. sterling, but for many years the coins issued from the Potosi Mint (with the exception of the Dollar) have all been 25 per cent. below the standard. This circumstance has reduced the exchange value of the Bolivian currency to about 8s. 1d. sterling per Dollar.

## ARGENTINE REPUBLIC, or, LA PLATA.

### BUENOS AYRES.\*

The denominations of money used in keeping accounts are *Patacons*, or *Dollars*, and *Centesimos*, as follows:—

<i>Buenos Ayres value.</i>	<i>Systematic name.</i>	<i>English value.</i>
	1 Centesimo	= ¼d.
100 Centesimos	= 1 Dollar or Patacon	= 2s. 1d.

In the year 1857, the Buenos Ayres Government made the gold *Doubloon*, at the rate of 17 to the *Patacon*, the chief monetary unit and divided the Dollar into 100 parts. Previous to that time accounts were kept in *Dollars*, *Reals*, and *Quartos*.

The circulating medium of Buenos Ayres consists principally of an inconvertible paper currency 100 Paper Dollars, *Patacons* being equal to 90 Silver Dollars; but the value of the Paper Currency is constantly fluctuating, and for the present it would be impossible to resort to Specie payments or to an exclusive Specie Currency. The Paper Dollar had the same value as originally the Silver Dollar of South America, but it has become greatly depreciated, mainly through *over-issue*. Its present value is about 2s. sterling.

### GOLD COINS.

The gold coins, very few of which are in circulation, are *Doubloons* of Mexico, Peru, and Chili, at the rate of 16 silver *Patacons* or Dollars each; the *Double Eagle* (20 Dollars), the *Eagle* (10 Dollars), the *Half-Eagle* (5 Dollars), the *Quarter-Eagle* (2½ Dollars), and the *3 Dollar Piece* of the United States of North America, at par; the British *Sovereign*, at 4 *Patacons*

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\* The States of the Confederation were Buenos Ayres, Entre-Rios, Corriente, Santa Fé, Cordova, Santiago, Tucuman, Salta, Catamarca, Rioja, San Juan, San Luis, and Mendoza. Civil disputes led to a dissolution of the Confederacy, and the country is now so many independent provinces, the leading one of which is Buenos Ayres. Buenos Ayres, from its maritime position, is the emporium for the produce of the whole of La Plata, and also for Chili and Peru. The wealth and prosperity of Buenos Ayres have been rapidly increasing of late years, and no doubt if peace continue, the currency will be placed on a sounder footing. The honorable arrangement made by the Buenos Ayres Government with British Bond holders has inspired commercial confidence, and British capital is finding its way into the province. Railways have been constructed. A Bank with London Directors has been opened at Buenos Ayres, and an English Bank under the protection of the Buenos Ayres Government is likely to be established at Cordova and Buenos Ayres. Bonds in the London Market are steadily increasing in price.

90 Cents; the British *Half-Sovereign*, at 2 Patacons, 45 Cents; the *French Napoleon*, at 3 Patacons, 90 Cents, and the *Chilian Condor*, at 9 Patacons, 20 Cents.

The intrinsic value of the Doubloon is about 64s., or perhaps 64s. 8d. sterling, and thus the value of the Dollar, deduced from that of the Doubloon, would be about 3s. 10d. sterling. In large mercantile transactions gold is the most frequent medium of payment.

#### SILVER COINS.

The following are the silver coins which are occasionally met with in the circulation, but their amount is very limited and they can hardly be considered a part of the legal currency. The Spanish *Real*, and 2 *Real* and 4 *Real Pieces*, 1,  $\frac{1}{2}$ , and  $\frac{1}{4}$ , *Bolivian Dollar Pieces*, *Peruvian* and *Chilian Dollars*, and the *Patacon* or *Silver Dollar* of the Argentine Republic, but this latter has almost wholly disappeared from circulation. It was of the same weight and purity as the Spanish Hard Dollar.

#### COPPER COINS.

There are some copper coins in circulation which from being equal to  $\frac{1}{4}$ th of a Paper Dollar were called *Reals*, they are of the same value as the *Centesimo*, viz.,  $\frac{1}{4}$ d sterling.

#### PAPER MONEY.

The paper money in circulation consists of Notes of 5, 10, 20, 50, 100, 500, and 1,000 Dollars.

The Paper Currency of Buenos Ayres is not admitted in any of the other states of the Argentine Confederation. The principal medium of circulation in those States is the *Bolivian Dollar*. Doubloons are also used, but are considered more as merchandize, being sold and bought for a variable number of *Bolivian Dollars*, generally from 18 to 19. This would give the nominal value of the *Bolivian Dollar* from 8s. 4 $\frac{1}{2}$ d. to 8s. 6 $\frac{1}{2}$ d. Some of the Provinces have also a depreciated Paper Currency.

### URUGUAY. (Montevideo.)

Accounts are kept in *Dollars*, *Reals*, and *Centimes*, as in Spain.

The currency consists of gold Doubloons, silver Dollars and their subdivisions. The Doubloon is rated at 64s. and the Dollar at 4s. 2d. sterling, but the exchanges are usually quoted over.

**PARAGUAY.**

Accounts are kept in *Dollars* of 100 *Centimes*, and the currency is the same as that of Bolivia.

**FALKLAND ISLANDS.**

The denominations of money used in accounts are *Pounds*, *Shillings*, and *Pence* sterling, and the currency of the islands consists chiefly of British coins.

**NEW SOUTH WALES.**

VICTORIA, SOUTH AUSTRALIA, WEST AUSTRALIA, TASMANIA  
(OR VAN DIEMEN'S LAND).

The moneys in which reckonings are made and accounts kept are the same as those of Great Britain. The currency consists almost wholly of British silver coins and of Bank notes for £1 sterling and upwards. These notes are all payable in specie on demand.

**NEW ZEALAND.**

Accounts are kept in *Pounds*, *Shillings*, and *Pence* sterling, and the current coins are those of Great Britain.

New Caledonia, the Rotumah Islands, Wallis Islands, Gambier's Island, the Marquesas, or Mandana Islands.

The money is the same as that of France.

## THE SANDWICH ISLANDS.

The British denominations of *Pounds, Shillings, and Pence* sterling (see p. 6) have been declared the official moneys of account for the whole kingdom, but merchants almost always keep their accounts in Dollars and Cents, or Dollars and Reals, as follows:—

<i>Hawaiian value.</i>	<i>Systematic name.</i>	<i>English value.</i>
100 Cents, or 8 Reals	= 1 Dollar	= 4s. 2d.

The currency consists of coins of other countries to which are assigned rates fixed by custom, and by the rates at which the Government receives them in payment of duties and taxes. These rates depend on the intrinsic value of the coins, and also on the extent of commercial intercourse with the countries to which the coins belong, and the proximity or distance of those countries. The following are the rates at which the undermentioned foreign coins are now current.

## GOLD COINS.

	Value in sterling Pounds, Shilgs., Pence.			Value in Dollars, Cents.	
Doubloon of Bolivia and Chili ..	3	2	6	15	0
Chilian Ten Pesos.. .. .	1	13	4	8	0
Eagle of the United States of North America .. .. .	2	1	8	10	0
Brazil, 20,000 Reis .. .. .	2	1	8	10	0
Sovereign of England, and Australia ..	0	19	9½	4	75
Half-Sovereign .. .. .	0	9	10½	2	37½
Ten Thaler Piece of Denmark ..	1	11	3	7	50
Twenty-five Francs of Belgium ..	0	19	2	4	60
Twenty Franc Piece of France ..	0	16	8	4	0
Ten .. .. .	0	8	4	2	0
Five .. .. .	0	4	2	1	50
Central America, Two Escudos ..	0	14	7	3	0
South American Gold Dollar ..	0	3	1½	0	75
California Twenty Dollars .. ..	4	1	3	19	50
.. Ten Dollars .. .. .	1	19	7	9	50
.. Five Dollars.. .. .	0	18	9	4	50

As the gold coinage of the United States of North America is the chief standard of value, and almost all other coins are estimated relatively thereto at a depreciated value for circulating purposes, the consequence is that other coins are kept out of the circulation, or driven from it.

## SILVER COINS.

	Value in sterling			Value in	
	Pounds,	Shilgs.,	Pence.	Dollars,	Cents
Five Franc Piece of France .. ..	0	4	2	1	0
Dollar of Columbia (Macaquina) ..	0	2	6	0	60
Half-Dollar of Bolivia, Chili and Peru .. .. .	0	1	6½	0	37½
Quarter Dollar of Bolivia and Chili	0	0	6½	0	12½
Silver Ruble of Russia .. .. .	0	3	1½	0	75
Thaler of North Germany .. .. .	0	2	7½	0	62½
Rupee of India.. .. .	0	1	6½	0	37½
Half-Crown of England .. .. .	0	2	7½	0	56½
Shilling .. .. .	0	1	0½	0	25
Sixpence ,, .. .. .	0	0	6½	0	6½

The French 5 Franc Piece being so convenient in the absence of any American silver Dollar sustains a relatively high current value. It passes for a Dollar, and is the common silver coin.

## COPPER COIN.

Cent of the United States of North America = ¼d.

## THE MARIAN ISLANDS, AND TINIAN.

The money is the same as that of Spain.



# AVERAGE COURSE OF EXCHANGE 109

FOR THE YEARS 1864—1872.

LONDON receives from or gives to—

Amsterdam ..	Short ..	11	Gulden	17	cents ..	For £1 Sterling.
Amsterdam ..	8 months..	11	Gulden	79	cents ..	" " "
Rotterdam ..	" ..	11	Gulden	82	cents ..	" " "
Antwerp ..	" ..	25	Francs	48	centimes	" " "
Brussels ..	" ..	25	Francs	49	centimes	" " "
Hamburg ..	Short ..	18	Marks	8	schillinge	" " "
Hamburg ..	8 months..	18	Marks	10	schillinge	" " "
Paris ..	Short ..	25	Francs	81	centimes	" " "
Paris ..	8 months..	25	Francs	50	centimes	" " "
Marselles ..	" ..	25	Francs	50	centimes	" " "
Frankfort-on-Main	" ..	190½	Florins			" \$10 "
Vienna ..	" ..	12	Florins	19	cents ..	" \$1 "
Trieste ..	" ..	12	Florins	81	cents ..	" " "
St. Petersburg..	" ..	80d.	sterling			For 1 Ruble.
Copenhagen ..	" ..	9	Rigsdalers	17	skilling ..	For £1 Sterling
Berlin ..	" ..	6	Thalers	27	groschen	" " "
Leipsic ..	" ..	6	Thalers	27	groschen	" " "
Madrid ..	" ..	48d.	sterling			" 1 Dollar.
Cadix ..	" ..	48d.	sterling			" "
Barcelona ..	" ..	49d.	sterling			" "
Malaga ..	" ..	48d.	sterling			" "
Santander ..	" ..	48d.	sterling			" "
Leghorn ..	" ..	26	Lire	85	cents ..	" \$1 Sterling.
Milan ..	" ..	26	Lire	86	cents ..	" " "
Genoa ..	" ..	26	Lire	86	cents ..	" " "
Venice ..	" ..	26	Lire	86	cents ..	" " "
Naples ..	" ..	26	Lire	85	cents ..	" " "
Palermo ..	" ..	26	Lire	99	cents ..	" " "
Messina ..	" ..	26	Lire	89	cents ..	" " "
Oporto ..	90 days ..	52d.	sterling			" 1 Milreis.
Lisbon ..	" ..	51½d.	"			" "
New York ..	60 days ..	109½	"			Per cent. Sterling.
Bombay ..	" ..	28½d.	"			" 1 Rupee.
Calcutta ..	" ..	28½d.	"			" "
Canton ..	" ..	4s. 6d.	"			" 1 Dollar.
Shanghai ..	" ..	6s. 1d.	"			" "
Hong Kong ..	" ..	4s. 6d.	"			" "
Buenos Ayres ..	" ..	49d.	"			" "
Rio Janeiro ..	" ..	21d.	"			" 1 Milreis.
Bahia ..	" ..	22½d.	"			" "
Montevideo ..	" ..	51d.	"			" 1 Dollar.
Pernambuco ..	" ..	28d.	"			" 1 Milreis.
Santiago (Chil)	" ..	44d.	"			" 1 Dollar.
Lima ..	90 days ..	87d.	"			" "

\* The exchange for "Greenbacks" (or paper currency) was exceptionally high during the Civil War (1861—5). In 1864 the average was 202½; in 1865 it was 158; in 1866 it was 146½; in 1867 it was 109½. The average price of gold in the year 1871 was 111½.

## PART II.

## WEIGHTS AND MEASURES.

## GREAT BRITAIN AND IRELAND.

The yard is the standard measure of length; when compared with a pendulum vibrating seconds of mean time, in the latitude of London, in a vacuum at the level of the sea, it is in the proportion of 86 inches to 89·1898 inches.

<i>English value.</i>	<i>Systematic name.</i>	<i>Equivalent value. in the Metric System</i>
		Centimetres.
12 Lines =	1 Inch =	2·5399
12 Inches =	1 Foot =	30·4794
3 Feet =	1 Yard =	91·4388
5½ Yards =	1 Pole, Rod, or Perch =	Metres. 5·02911
4 Poles, or } 100 Links }	1 Chain =	20·11643
40 Perches, or } 10 Chains }	1 Furlong =	201·16486
8 Furlongs, or } 1760 Yards }	1 Mile =	Kilometres. 1·610931492
3 Miles =	1 League =	4·832794476

The Inch is also divided into *fourths* and *eighths*, and sometimes into *tenths*.

		Metres.
A perch in Burleigh or Woodland measure } is 6 yards }		= 5·486298
„ Cunningham 6½ „ „ }		= 5·714894
„ Irish 7 „ „ }		= 6·400681
„ Forest 8 „ „ }		= 7·815004

The Irish mile of 820 perches or 2240 yards = 2.048 kilometres, and 5½ Irish miles = 7 English miles, or 11 Irish = 14 English miles.

To reduce Irish miles to English miles multiply by 14 and divide by 11.

To reduce English miles to Irish miles multiply by 11 and divide by 14.

A Palm is 8 inches, a hand is 4, a span 9, a cubit 18, and a sacred cubit 22 inches. A Military Pace is 2½ feet. A Geometrical or Itinerary pace is 5 feet, it is the space from "the elevation of one foot to the same foot set down again, mediated by a step of the other foot"; 1000 of such paces were reckoned to a mile. A fathom is 6 feet. A Cable's length is 120 fathoms. A degree of the Equator is 69.1613 miles, and a degree of the Meridian is 69.046 miles or 864565 feet.

CLOTH MEASURES.

Centimetres.

2½ Inches	=	1 Nail	=	5⅞
4 Nails	=	1 Quarter	=	22½
4 Quarters	=	1 Yard	=	91½
5 Quarters	=	1 Ell	=	114½

A Flemish Ell is 8 and a French Ell was 6 Quarters.

IMPERIAL MEASURES OF SURFACE.

<i>English value</i>	<i>Systematic name.</i>	<i>Equivalent value in the Metric System.</i>
		<i>Area.</i>
144 Sq. Inches	= 1 Sq. Foot	= .000929
9 Sq. Feet	= 1 Sq. Yard	= 0.08361 or .836097 <span style="float: right;"><i>Square Metres.</i></span>
80½ Sq. Yds. or } 272½ Sq. Feet }	= 1 Sq. Rod, Pole or Perch. }	= .252919 or 25.291939
49 Sq. Yds. {	=(in Ireland) 1 square perch }	= .409687 or 40.968753
40 Poles = 1210 } square yards }	= 1 Rood	= 10.116775
4 Roods {	4840 Sq. Yds. 10 Sq. Chains or (100,000 Sq. Links)	= 1 Acre = 40.467102 or 40.4671 <span style="float: right;"><i>Hectares.</i></span>
100 Acres make 1 Hide of Land		= 4046.7102 or 40.467102
640 " " "	1 Square Mile	

## MEASURES OF CUBIC CAPACITY.

<i>English value.</i>	<i>Systematic name.</i>	<i>Equivalent value in the Metric System. Cubic Metres.</i>
1728 Cubic Inches	= 1 Cubic Foot	= .028315
27 Cubic Feet	= 1 Cubic Yard	= .764518
40 Cubic Feet } rough timber }	= 1 Load	= 1.182600
42 Cubic Feet	= 1 Ton of Shipping	= 1.189280
50 Cubic Feet } hewn timber }	= 1 Load	= 1.415750
*108 Cubic Feet	= 1 Stack of Wood	= 3.058020
†128 Cubic Feet	= 1 Cord of Fire-wood	= 3.624820

A Cubic Yard is sometimes called a Load (cart load) of earth. A Ton of Shipping is a weight as well as a measure.

## LIQUID MEASURES.

<i>English value.</i>	<i>Systematic name.</i>	<i>Equivalent value in the Metric System. Millilitres. Litres.</i>
8.665 Cubic Inches	= 1 Gill	= 141.984 or .14198
4 Gills	= 1 Pint †	= 567.986 „ .567986
2 Pints	= 1 Quart	= 1.18587
4 Quarts	= 1 Gallon	= 4.548487

By the Act 5th Geo. IV. the unit and only Standard measure of capacity as well for all sorts of liquids as for dry goods not measured by heaped measure is the Imperial Gallon containing 10 pounds Avoirdupois weight of distilled water, weighed in air at the temperature of 62 degrees of Fahrenheit's thermometer, the barometer being at 30 inches. The gallon imperial contains 277.27884 cubic inches.

## MEASURES FOR DRY GOODS (STRUCK MEASURE).

<i>English value.</i>	<i>Systematic Name</i>	<i>Equivalent value in the Metric System. Litres. Hecto l.it.</i>
2 Pints	= 1 Quart	= 1.1858
4 Quarts	= 1 Gallon	= 4.548487
2 Gallons	= 1 Peck	= 9.086974
4 Pecks (8Gallons)	= 1 Bushel	= 36.347696
8 Bushels	= 1 Quarter	= 2.90788168

\* A Stack of wood is 8 Feet broad, 8 Feet deep, and 12 Feet long. It is also called a French cord.

† A Cord of wood is 4 Feet broad, 4 Feet deep, 8 Feet long, and weighs 10 Cwt.

At the Royal Arsenal Woolwich, the terms Cord and Stack are used indiscriminately to denote 108 Cubic Feet of wood.

‡ An Imperial Pint of distilled water weighed in vacuo, at its greatest density, is equal to 8750 Grains Troy, or 20 Ounces Avoirdupois.

A bushel of wheat weighs on an average	57 to 60 lbs.
"    rye                    "          "	55 lbs.
"    barley          "          "	47 to 49 lbs.
"    oats              "          "	38 to 40 lbs.
"    malt              "          "	40 lbs.
"    bere              "          "	42 lbs.

STANDARD FOR HEAPED MEASURE.

The standard measure of capacity for coals, culm, lime, fish, potatoes, fruit and all other goods and things commonly sold by heaped measure is the bushel containing 80 pounds Avoirdupois of water, the same being made round with a plain and even bottom, and being 19½ inches from outside to outside of such standard measure.—In making use of such bushel all coals and other goods and things commonly sold by heaped measure shall be duly heaped in such bushel in the form of a cone, such cone being of the height of at least 6 inches, and the outside of the bushel to be the extremity of the base of such cone; three bushels make 1 sack—1·09042992 French hectolitres and 12 sacks make one chaldron—18·08515904.

CAPACITY AND NAMES OF BEER AND ALE CASKS.

9 Gallons*	= 1 Firkin of Beer	= 40·89112 Litres.
2 Firkins or 18 Gallons	= 1 Kilderkin	= 81·78224 "
2 Kilderkins, or 36 "	= 1 Barrel of Beer	= 163·56448 "
3 Kilderkins, or 54 "	= 1 Hogshead of Beer	= 245·34672 "
2 Hogsheads, or 108 "	= 1 Butt	= 490·69344 "

CAPACITY AND NAMES OF WINE CASKS.

42 Gallons	= 1 Tierce	= 190·835296 "
68 Gallons, or 1½ Tierce	= 1 Hogshead of wine	= 286·257854 "
84 Gallons, or 2 Tierces or 1½ Hogshead	= 1 Puncheon	= 381·650472 "
8 Tierces, or 2 Hhds.	= 1 Pipe	= 572·475708 "
2 Pipes	= 1 Tun	= 1144·951416 "

MISCELLANEOUS TABLE OF LIQUID MEASURES.

1 Hogshead of Claret . . . 48 galls.	1 Hhd. of Marsalas Bronte . . . 98 galls.
1 Butt of Sherry . . . 110 "	1 Pun. of S. Whisky 112 to 120 "
1 Pipe of Port . . . 115 "	1 Pun. of Brandy . . . 100 to 110 "
1 Pipe of Madeira . . . 92 "	1 Hhd. of Brandy . . . 45 to 60 "
1 Pipe of Teneriffe . . . 100 "	1 Cask of Brandy . . . 20 to 25 "
1 Pipe of Lisbon . . . 117 "	1 Pipe of Cider . . . 100 to 118 "
1 Pipe of Malaga . . . 105 "	1 Piece of Geneva, about . . . 116 "
1 Hogshead of Hook, Rhein, and Moselle . . . 80 "	1 Pun. of Rum . . . 90 to 100 "
1 Hogshead of Cape . . . 92 "	1 Hhd. of Rum . . . 45 to 50 "
1 Hogshead of Tent . . . 52 "	1 Tun of Wine . . . . . 252 "

\* Five Imperial Gallons are nearly equal to six Gallons of the old system used in the wine trade.

## VI.—MEDICAL SUB-DIVISIONS OF THE IMPERIAL PINT.

<i>English value.</i>	<i>Systematic name.</i>	<i>Equivalent value in the Metric System.</i>
	Minim (m.) =	Millilitres. ·05615960937
60 Minims	= 1 Fluid Drachm (f.ʒ) =	3·5495765625
8 Fluid Drachms	= 1 Fluid Ounce (f.ʒ.) =	28·39661251
20 Fluid Ounces	= 1 Imperial Pint (0.) =	Litres. ·567936
8 Pints	= 1 Gallon =	4·543487

## VII.—WEIGHTS.

## AVOIRDUPOIS WEIGHTS.

<i>English value.</i>	<i>Systematic name.</i>	<i>Equivalent value. in the Metric System.</i>
	1 Grain =	Grammes. ·0648
27 $\frac{1}{4}$ Troy Grains	= 1 Dram (dr.) =	1·7718476
16 Drams	= 1 Ounce (oz.) =	28·3495625
16 Ounces (or 7000 Troy Grains) }	= 1 Pound (lb.) =	453·5925
14 Pounds	= 1 Stone =	Kilogrammes. 6·350802
28 Pounds	= 1 Quarter (qr.) =	12·700604
4 Quarters (or 112 lbs. }	= 1 Hundredweight (cwt.) =	50·802416
20 Hundredweight	= 1 Ton =	1016·0482

The unit and only standard of weight is the Imperial Troy pound, one twelfth of the said Troy pound is an ounce and one twentieth part of such ounce is a penny weight, and one twenty-fourth part of such pennyweight is a grain; so that five thousand seven hundred and sixty such grains are a Troy pound, and seven thousand such grains are a pound Avoirdupois; one sixteenth part of the pound avoirdupois is an ounce, and one sixteenth part of such ounce is a dram.

The standard Troy pound if lost might be restored by reference to the weight of a cubic inch of distilled water, which weighed in air by brass weights, at the temperature of 62 degrees of Fahrenheit's thermometer, the barometer being at 30 inches, is equal to 252·458 grains, while the standard Troy pound contains 5,760 of such grains.

## WEIGHTS IN THE WOOL TRADE.

7 Pounds	≡	1 Clove	6 $\frac{1}{2}$ Tods	≡	1 Wey
14 Pounds	≡	1 Stone	2 Weyes	≡	1 Sack
2 Stone	≡	1 Todd	12 Sacks	≡	1 Last

In the reign of Edward III. (A.D. 1327—1377) a Sack of Wool contained 26 Stone, as now.

MISCELLANEOUS WEIGHTS, MEASURES, AND NUMERICAL QUANTITIES.

Bag of Hops .. 2½ cwt.	Last of Gunpowder .. 2400 lbs.
Bag of Hamburg Rags .. 2½ cwt.	Last of Flour or Feathers .. 17 cwt.
Bag of Rice .. 168 lbs.	Last of Herrings .. 10000
Bale of Mediterranean Rags .. 4½ to 5 cwt.	Load of Straw { .. 11cwt., Sqrs. 8lbs... 1998lbs.
Bale of Feathers .. about 1 cwt.	" " New Hay { .. 86 trusses of 60lbs... 2160lbs.
Ball or Boll of Scotch Oatmeal .. 140 lbs.	" " Old Hay { .. 86 trusses of 66lbs... 2016lbs.
Barrel of American Flour .. 198 lbs.	" of Bricks .. 500
Barrel of Soap .. 256 lbs.	" of Tiles .. 1000
Barrel (in Ireland for Wheat, Peas, Beans and Rye) .. 20 stone	" of Potatoes (at Doncaster) ..
Barrel (Barley, Beer, Rape Seed) .. 16 stone	Pack of Wool .. 240lbs.
Barrel of Coal Tar, or Stockholm Tar .. 25 gallons	Peck of Salt .. 14 lbs.
Barrel of Lime (Ireland) .. 52 gallons	Pig Ballast .. 56 lbs.
Barrel of Oats .. 14 stone	Pocket of Hops .. 1½ to 2 cwt.
Barrel of Gunpowder .. 100 lbs.	Quarter of Timber .. 80 deals
Barrel of Malt .. 12 stone	Quintal .. 100 lbs.
Barrel of Anchovies .. 80 lbs.	Roll of Parchment .. 60 skins.
Bundle of Iron .. 56 lbs.	Sack of Flour .. 287 lbs.
Bundle of Iron Wire up to 20 guage .. 68 lbs.	Score .. 20 articles
Bundle of Iron Wire above 20 guage .. 60 lbs.	Seam of Glass .. 120 lbs.
Bushel of Flour .. 56 lbs.	Stone of Butcher's meat .. 8 lbs.
Cask of Blacklead .. abt. 11½ lbs.	" " Cheese .. 16 lbs.
Cask of Bristles .. 10 cwt.	" " Fish .. 8 lbs.
Clove of Wool .. 7 lbs.	" " Glass .. 5 lbs.
Clove of Cheese .. 8 lbs.	" " Hemp .. 22 lbs.
Dosen .. 12 articles	" " Iron .. 14 lbs.
Great Hundred of Timber .. 120 deals	" " Iron wire up to 20 guage .. 10½ lbs.
Faggot of Steel .. 120 lbs.	" " Iron wire above 20 guage .. 10 lbs.
Firkin of Butter .. 56 lbs.	" " Wool sold by growers .. 14 lbs.
Firkin of Raisins .. 112 lbs.	" " Wool sold by Woolstaplers to each other .. 15 lbs.
Firkin of Soap .. 84 lbs.	Truss of Straw .. 36 lbs.
Fother of Lead .. 19½ cwt.	" " Old Hay .. 56 lbs.
Gross (a) .. 144 articles	" " New Hay .. 60 lbs.
Hundred feet of Timber .. 120 deals	
Hogshead of Tobacco .. 12 to 18 cwt.	

(b) TROY WEIGHT.

<i>English value.</i>	<i>Systematic name.</i>	<i>Equivalent value in the Metric system.</i>
	1 Grain (gr.)	Milligrammes. 64·799
24 Grains	= 1 Pennyweight (dwt.)	Grammes. 1·555176
20 Pennyweights	= 1 Ounce or Carat (oz.)	= 31·10352
12 Ounces	= 1 Pound (lb.)	= 273·24224

Diamonds and other precious stones are weighed by carats, each carat being divided into halves, quarters, eighths, and sixteenths. The ounce Troy weighs 151½ diamond carats, so

that the diamond carat is equal to  $3\frac{1}{2}$  Troy grains, or 205 $\frac{1}{2}$  French decigrammes.

Pearls are weighed by the Troy standard, but the Penny-weight is divided into 30 grains instead of 24; and hence the Pearl ounce contains 600 Pearl grains, and 4 Troy grains are equal to 5 Pearl grains.

*Apothecaries' Weight.*

The revised weights and measures of the British Pharmacopœa are the Grain, the Ounce, and the Pound, as follows:—

	1 Grain (gr.)	=	Milligrammes.	64.799
			Grammes.	28.34956
437 $\frac{1}{2}$ Grains	=	1 Ounce (oz.)	=	
16 Ounces	=	1 Pound (lb.)	=	453.593

The Apothecaries' Weights superseded by the above are as follows:—

*Old Apothecaries' Weight.*

20 Grains	=	1 Scruple (ʒ)	=	{ Milligrammes. 1295.98 or Grammes. 1.29598
8 Scruples	=	1 Drachm (ʒ)	=	
8 Drachms	=	1 Ounce (ʒ)	=	3.88794
12 Ounces	=	1 Pound	=	31.10352
				373.24224

TABLE OF THE SIZES OF BOOKS

	pages. leaves. sheet.		pages. leaves. sheet.
Folio Books . . .	4 or 2 make 1	Duodecimo, or 12 mo	24 or 12 mk. 1
Quarto, or 4to . . .	8 . 4 . 1	Octodecimo, or 18 mo	36 or 18 . 1
Octavo, or 8vo . . .	16 . 8 . 1	24mo, 32mo, 48mo, 72mo, &c., &c.	

TABLE OF THE QUANTITIES OF PAPER.

24 sheets of paper . . .	1 quire	21 $\frac{1}{2}$ quires	1 Printer's ream
20 sheets . . .	1 quire outsidés	2 reams	1 bundle
25 sheets . . .	1 Printer's quire	10 reams	1 bale
20 quires . . .	1 ream		

*Sizes of Paper.*

Pot . . . . .	19 $\frac{1}{2}$ by 15 $\frac{1}{2}$ inches	Medium . . . . .	18 $\frac{1}{2}$ by 23 $\frac{1}{2}$ inches
Foolscap . . . . .	18 $\frac{1}{2}$ by 16 $\frac{1}{2}$ inches	Royal . . . . .	19 $\frac{1}{2}$ by 24 inches
Litris . . . . .	18 $\frac{1}{2}$ by 17 $\frac{1}{2}$ inches	Super royal . . . . .	19 $\frac{1}{2}$ by 27 $\frac{1}{2}$ inches
Post . . . . .	15 $\frac{1}{2}$ by 18 inches	Imperials . . . . .	21 $\frac{1}{2}$ by 29 $\frac{1}{2}$ inches
Large Post . . . . .	16 by 20 $\frac{1}{2}$ inches	Double crown . . . . .	20 by 30 inches
Demy . . . . .	18 by 22 inches	Dbl. foolscap . . . . .	16 $\frac{1}{2}$ by 26 $\frac{1}{2}$ inches

*Sizes of Drawing Paper.*

Wove Antique . . . . .	25 by 27 inches	Imperial . . . . .	31 by 21 inches
Double Elephant . . . . .	40 by 26 inches	Super Royal . . . . .	27 by 19 inches
Atlas . . . . .	38 by 26 inches	Royal . . . . .	24 by 19 inches
Columbier . . . . .	34 by 23 inches	Medium . . . . .	22 by 17 inches
Elephant . . . . .	27 by 23 inches	Demy . . . . .	20 by 15 inches

90 words in Chancery, 80 in Exchequer, and 71 in Common law, are 1 folio.

Quills are sold by weight, called loths—a loth is about half an ounce.



## THE QUARTER DAYS.

Lady Day ..	25th March
Midsummer Day ..	24th June
Michaelmas Day ..	29th September
Christmas Day ..	25th December

## DIVISIONS OF THE CIRCLE.

60 seconds .. .. .	= 1 minute
60 minutes .. .. .	= 1 degree
80 degrees .. .. .	= 1 sign
90 degrees .. .. .	= 1 quadrant
360 degrees, or 12 signs	= 1 circumference

## MEASURES OF TIME.

	second (s.)
60 seconds .. .. .	= 1 minute (m.)
60 minutes .. .. .	= 1 hour (h.)
24 hours .. .. .	= 1 day (d.)
7 days .. .. .	= 1 week (w.)
4 weeks .. .. .	= 1 civil month
365 days, or 52 weeks ..	= 1 civil year (yr.)
366 days .. .. .	= 1 leap year.

## THE CALENDAR.

A *mean solar day* is the *average* interval between two successive transits of the meridian of any place past the centre of the sun's disc. A solar year contains 365·212218 mean solar days, or 365 days, 5 hours, 48 minutes, 48 seconds. The civil, or common year, contains 365 days, and is, therefore, shorter by 5 hours, 48 minutes, 48 seconds, than the true year. This error, if not corrected, would lead to a confusion in the return of the seasons, causing summer to fall sometimes in July, and sometimes in December. Julius Cæsar, perceiving this, ordered that every fourth year should contain 366 days. The extra day is added to February, and the year in which it occurs is called "Leap-year." The Julian correction was too great by ·007782 of a day. This error amounted in 1200 years to 9·3384 days, and in 400 years to 3·1128 days, hence the Vernal Equinox which had fallen on the 21st March, in the year A.D. 825, fell on the 11th March, in the year A.D., 1582. At the council of Nice in 1582, Pope Gregory XIII., to rectify this error, ordered that 11 days should be omitted in that year. Causing the day succeeding the 4th October to be denominated the 14th so that in A.D. 1583, the Equinoxes and Solstice happened on the same nominal days on which they fell in the year A.D. 325. To prevent

the recurrence of the error he ordered further that every *fourth* year should contain 366 days, but that in every cycle of 400 years, the 100th, 200th, and 300 years should contain only 365 days; and that every 400th year should contain 366 days. Hence the Gregorian correction of the Julian Calendar, which is a deduction of three days from every 400 years, may be briefly stated as follows:—

Every *fourth* year is leap year, except in exact centuries, the first 3 of which are common years, and fourth is a leap year. To find the average length of the Gregorian year, multiply  $365\frac{1}{4}$ , the average number of days in the Julian year, by 400. Subtract 3 from the product and divide the remainder by 400. Thus  $365\frac{1}{4} \times 400 = 146100$  and  $146100 - 3 = 146097$  and  $146097 \div 400 = 365\frac{2425}{1000} = 365.2425$  days.

The average year of the Gregorian Calendar, namely 365.2425 days, or 365 days, 5 hours, 49 minutes, 12 seconds, is greater than the true year by .000282 of a day, or 24.3648 seconds, but this error amounts only to a day in 4000 years. It was not till the year 1752 that the Gregorian Calendar, or *new style*, as it is called, (to distinguish it from the Julian Calendar or *old style*, (still retained in Russia) was introduced into Great Britain. In that year, the then Secretary of State, Lord Chesterfield, assisted by two able mathematicians, Lord Macclesfield and Mr. Bradley, prepared a Bill for reforming the Calendar. This Bill enacted that the new year should begin on the 1st of January, instead of the 25th March, and that 11 days, intermediate between the 2nd and 14th of September, 1752, should be omitted.

In works of that period, and prior to it, a double date is often met with for the months of January, February, March, up to the 24th March; as for instance the "15th February, 1754—5." In such cases the former date indicates the year according to the *old style*, and the latter year according to the *new style*.

#### *Rule to Find Leap-year.*

When the figures denoting the year, or in exact centuries when the figures denoting the hundreds in the date, can be evenly divided by 4, the year is leap-year; when there is a remainder, it denotes the number of years that have elapsed since leap year. Thus, 1860 is divisible by 4 without remainder, it was therefore leap-year; but 1863, on division by 4, gives a remainder of 3, thus showing that the year 1863 is the third after leap year. Again, 1600 and 2000 complete each an exact century, and the numbers 16 and 20, which denote the *hundreds* in the dates are each divisible by 4, hence the years 1600 and 2000 are leap years; but in 1700, 1800, and, 1900, the number 17, 18, and 19 are not so divisible, and therefore the years are not leap years.

## THE CHANNEL ISLANDS.

VIZ.,

GUERNSEY, JERSEY, ALDERNEY, AND SARK.

The weights and measures are the same as those of the United Kingdom of Great Britain and Ireland.

## FRANCE.

The Metric system of weights and measures is now very generally used in many countries throughout the world. France took the initiative in introducing this system into Europe. The fundamental basis of the Metric system is a quadrant of the meridian, that is, the distance from the Equator to the north pole. This quadrant is divided into ten millions of equal parts, and one of these parts is called a metre. The metre is the fundamental unit of measures of length as well as of all weights and measures, and from it, by decimal multiplication and division, all other measures are derived.

Delambre and Mechain calculated, from measuring an arc of the meridian between Dunkirk and Barcelona, the length of the quadrant of a meridian from the Equator to the Pole.

The *ten millionth part* of that meridian is the unit of length, and is called a *Metre*. It is equal to 39·37079 English inches.

The square of 10 Metres (in other words, a square *Deca-metre*.) is the unit of surface measure, and is called an *Are*. It is equal to 3·995 English perches.

The cube of the tenth part of the Metre, that is, a cubic *Decimetre*, is the unit of measures of capacity, and is called a *Litre*. It is equal to 1·7607 Imperial British pints.

The cube of a Metre is the unit of solid measure, and is called a *Stere*. It is equal to 3·5317 English cubic feet.

The unit of weight is the *Gramme*, it is the weight *in vacuo* of a quantity of distilled\* water, at its greatest density (viz., at

\* Distilled water is taken at its greatest density and weighed *in vacuo* for the following reasons:—Between certain temperatures the same volume of water differs in weight at different degrees of heat. If a portion of water at the temperature of melting ice (32° Fahrenheit, or 0° Centigrade) be placed over a source of heat, its bulk, or *volume*, will be observed to *decrease*, and therefore its *density increases*. This decrease of volume, or increase of density, continues until the water reaches the temperature of 39·2° F., or 4° C. If the heat be applied beyond this point the water begins to increase in volume and decrease in density. Water is therefore at its greatest density at the temperature of 39·2° F., or 4° C. Ordinary water always contains, either in solution or suspension, a quantity of saline and other substances, and the same *volume*, or bulk, of different specimens of water will vary in weight according to the quantity of foreign bodies contained in it.

The weight of the same size, or bulk, of any substance is greater, or less, according as the density of the atmosphere (which is constantly

89·2° Far. †), which would be sufficient to fill a cube described upon the *one hundredth part* of a Metre. In other words, it is the weight of a cubic Centimetre of distilled water at a temperature of 89·2° F. It is equal to 15·78244 Troy grains.

The prefixes denoting multiples are derived from Greek, and those denoting divisions from Latin, thus :—Deca, 10 times ; Hecto, 100 times ; Kilo, 1,000 times ; Myrio, 10,000 times ; Deci,  $\frac{1}{10}$ th part ; Centi,  $\frac{1}{100}$ th part ; Milli,  $\frac{1}{1000}$ th part.

## MEASURES OF LENGTH.

<i>French value.</i>	<i>Systematic name.</i>	<i>English value.</i>
Thousandth part of Metre	= 1 Millimetre	= $\frac{0\cdot8987079}{\text{Inches.}}$
Hundredth part of Metre	= 1 Centimetre	= $\frac{3987079}{\text{Inches.}}$
Tenth part of a Metre	= 1 Decimetre	= $\frac{3987079}{\text{Inches.}}$
Ten millionth part of distance from Pole to Equator	1 Metre	$\left\{ \begin{array}{l} 39\cdot87079 \text{ or} \\ \text{Yd. Ft. In.} \\ 1 \ 0 \ 3\cdot87079 \end{array} \right.$
10 Metres		
100 Metres	= 1 Hectometre	= $\frac{109\cdot3638}{\text{Yards.}}$
1000 Metres	= 1 Kilometre	= $\frac{1093\cdot638}{\text{Yards.}}$
10,000 Metres $\frac{1}{10}$ of a degree decimal	= 1 Myriametre	$\left\{ \begin{array}{l} \text{Miles.} \\ \frac{6\cdot2188}{\text{Miles.}} \text{ or} \\ 6 \ 876 \ 011\cdot9 \end{array} \right.$
League of 4 kilometres		
League of 25 to a degree	= 4444 "	= 2 1840
League nautical of 20 to a degree	= 5556 "	= 3 796 $\frac{1}{2}$
Mile, nautical of 60 to a degree	= 1852 "	= 1 265 $\frac{1}{2}$

varying) is less or greater at different times. The greater the buoyancy of the air, the less will appear the weight of each body, and *vice versa*.

Therefore, to render the weight of water selected as the unit of weight free from variations arising from its impregnation with various salts, from difference of temperature, or from differences in the density of the air, distilled water at its greatest density is weighed *in vacuo*.

† There are three different sorts of Thermometers in use:—1. Fahrenheit's which is used chiefly in Great Britain, Holland, and North America, the freezing point on which is at 32°, and boiling point at 212°. 2. Reaumur's, which was that chiefly used in France before the Revolution, and is that now generally used in Spain, and in some other Continental States; its freezing point is 0°, and boiling point 80°. 3. The Celsius, or Centigrade Thermometer, now almost universally used throughout France and in the Northern and Middle Kingdoms of Europe; the Zero or freezing point is 0°, and boiling point 100°. Hence to reduce degrees of temperature of the Centigrade Thermometer, and of that of Reaumur to degrees of Fahrenheit's scale, and conversely:—**RULE 1.** Multiply the Centigrade degrees by 9, and divide the product by 5, or multiply the degrees of Reaumur by 9, and divide the product by 4; then add 32 to the quotient in either case, and the sum is the degree of temperature on Fahrenheit's scale. **RULE 2.** From the number of degrees on Fahrenheit's scale, subtract 32, multiply the remainder by 5 for Centigrade degrees, or by 4 for those of Reaumur's scale, and the product, in either case, being divided by 9, will give the temperature required.

## MEASURES OF SURFACE.

<i>French value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
100 Sq. Millimetres	= 1 Sq. Centimetre	= 1500591052192 <small>Square Inches.</small>
100 Sq. Centimetres	= 1 Sq. Decimetre	= 1500591052192 <small>Square Feet.</small>
100 Sq. Decimetres	= { 1 Centiare or } { Sq. Metre        }	= 107642998418 or 119603326 <small>Square Yards.</small>
100 Sq. Metres	= { 1 Are or Sq. } { Decametre    }	= 3958828959 or 119603326 <small>Poles.</small>
100 Sq. Decametres	= { 1 Hectare or } { 1 Sq. Hectometre }	= 98845724* or 24711481 or 222803326 <small>Roods.</small> <small>Acres.</small> <small>Sq. Yards.</small>
100 Sq. Hectometres	= 1 Sq. Kilometre	= 24711481 <small>Acres.</small>
100 Sq. Kilometres	= 1 Sq. Myriametre	= 24711481

The units most usually adopted for the measurement of surfaces, are, the square Metre, the square Decametre, and the square Kilometre, but the measurement of surfaces of very great extent is calculated in square Myriametres.

The unit for measurement of land is the square Decametre, called in this case an *Are*. Its subdivision is the *Centiare* (100th part of an *Are*), or square Metre, and its multiple is the *Hectare* (100 *Ares*), or square Hectometre. There is also the *Decare* of 10 *Ares* equal to about 89½ *Roods*. This may be shown in a tabular form as follows:—

## LAND MEASURE.

<i>French Value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
100th of an <i>Are</i>	= 1 Centiare or 1 Sq. Metre	= 1196046 <small>Square Yards.</small>
100 Centiares	= 1 <i>Are</i> or 1 Sq. Decametre	= 1196046
100 <i>Ares</i>	= { 1 Hectare or } { 1 Sq. Hectometre }	= 1196047 or 222803326 <small>Acres.</small> <small>Sq. Yards.</small>

\* The Hectare is equal to 2 Acres Rood, 35 Perches, English statute measure, nearly.

## CUBIC, OR SOLID MEASURES.

In the measurement of timber and other solid coherent substances, the *Cubic Metre*, in this case called a *Stere*, is the unit employed as follows:—

<i>French Value.</i>		<i>Systematic name.</i>		<i>Approximate English value.</i>
$\frac{1}{10}$ th of a Stere	=	1 Decistere	=	3·581714
10 Decisteres	=	1 Stere	=	35·81714
10 Steres	=	1 Decastere	=	358·1714

## MEASURE OF CAPACITY.

The unit of measures of capacity is the Litre; it is a measure whose length, width and depth are each equal to 1 Decimetre. It is therefore a Cubic Decimetre.

<i>French value.</i>		<i>Systematic name.</i>		<i>Approximate English value.</i>
1000th of a Cubic Decimetre	=	1 Millilitre	=	16·9034247744 Minims.
10 Millilitres, or 100th of a Cubic Decimetre	}	= 1 Centilitre	=	2·8172374624 Fluid Drachms.
10 Centilitres				= 1 Decilitre
10 Decilitre, or a Cubic Decimetre	}	= 1 LITRE	=	1·76077339525 Imperial Gallons.
10 Litres				= 1 Decalitre
10 Decalitres	}	= 1 Hectolitre	=	22·009667440625 or Imperial Bushels 2·751208430078125 2 Bushels & 3 Pecks, nearly Imperial Gallons.
10 Hectolitres, or 1000 Cubic Decimetres				}

To facilitate the transactions of the shop and the market the use of the *Half-Litre* and *Double-Litre*, and the *Half-Decilitre* and *Double-Decilitre*, are sanctioned by law, and these, with the *Litre*, are the chief measures in daily use. The English value of the *Decilitre* may be roughly stated at a little more

than  $\frac{3}{4}$ ths of a Gill, and that of the Litre a little less than a Quart. As a matter of convenience these measures, and also the multiples of the Litre, are made in a cylindrical form, but the correctness of the measure depends upon its containing precisely a Cubic Decimetre, and not upon its shape.

## WEIGHTS.

The Gramme, that is the weight *in vacuo* of a Cubic Centimetre of distilled water at a temperature of  $39\cdot2^{\circ}$  Fahrenheit ( $4^{\circ}$  centigrade), is the unit of weight. It is equal to 15·432349 grains Troy.

The Gramme and its subdivisions the Decigramme (10th of a Gramme) the Centigramme (100th of a Gramme) and the Milligramme (1000th of a Gramme) are the weights usually employed in the minute operations of scientific experiments.

In the large transactions of trade and commerce, the weights most frequently used are the Kilogramme (1000 Grammes), the Metrical Quintal or 100 Kilogrammes, and the *Nouveau Tonneau cademer*, or *Tonneau Metrique*, of 1000 Kilogrammes. The Kilogramme is equal to 2·2046lbs. Avoirdupois, and the Quintal and Ton are respectively equal to 220·466lbs. and 2204·66lbs. Avoirdupois.

## TABLE OF WEIGHTS.

<i>French value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i> Grains Troy.
1000th of a Gramme	= 1 Milligramme =	·015432349
100th of a Gramme or 10 Milligrammes	} = 1 Centigramme =	·154323488
10th of a Gramme or 10 Centigrammes		
10 Centigrammes, or the weight <i>in vacuo</i> of a cubic Centimetre of distilled water at $39\cdot2^{\circ}$ F.	} = 1 Gramme =	15·4323488
10 Grammes		
100 Grammes or 10 Decagrammes	} = 1 Hectogramme =	1543·23488 or Oz. 8 Drams Av. 8·4383
1000 Grammes or 10 Hectogrammes		
	} = 1 Kilogramme =	2·20466 or lbs. av. 2 Oz. 3 Drams. 4·3880

TABLE OF WEIGHTS. (Continued.)

<i>French value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
10000 Grammes or 10 Kilogrammes	} = 1 Myriagramme =	Ibs. Av. 22·0466 or
		st. lbs. Drains. 1 8 11·8804
10 Myriagrammes	= 1 Quintal Metrique =	Ibs. Av. 220·466 or
	cwt. cwt. st. lbs. oz. Drains. 1·97 or 1 7 10 7 6·804	
10 Quintals	= 1 Ton or Millier =	Ibs. Av. 2204·66 or
	cwt. cwt. st. lbs. oz. Drains. 19·7 or 19 5 6 9 15·04	

It will be readily understood that since a Litre or Cubic Decimetre is equal to 1000 Cubic Centimetres, and a Cubic Centimetre is a Gramme, therefore a Litre of distilled water at 39·2° F is equal to a Kilogramme, and it therefore follows that any number of Litres of distilled water at that temperature are equal in weight to a corresponding number of Kilogrammes.

Conversely the number of Grammes representing the weight of a quantity of water contained in a vessel will be the number representing the cubic capacity of the vessel in Centimetres. Hence, when the cubic capacity of a vessel is known, the weight of water which it would contain can be readily calculated without having recourse to actual weighing.

From this mutual relation of the Kilogramme and the Litre, the weight of any substance of known density or specific gravity can be calculated from its cubic capacity, or conversely, its cubic capacity can be calculated from its weight.

Specific gravity or density may be defined to be the weight of a given bulk, or volume of any substance as compared with an equal bulk of distilled water at 39·2° F. (4° centigrade), the weight of the water being taken as unity, or it may be more briefly defined as the comparative weight of equal bulks of different substances. Thus, for instance, if the weight of a given bulk of water be 100 Grammes, then the weight of an equal bulk of spirit would be 80 Grammes, that of iron 750, and that of mercury 1350 Grammes. It thus appears that (bulk for bulk of each being taken) spirit is  $\frac{4}{5}$ th lighter, iron  $7\frac{1}{2}$  times heavier, and mercury  $13\frac{1}{2}$  times heavier than water.



RUSSIA.

MEASURES OF LENGTH.

<i>Russian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
	1 Vershok =	Inches. 1½
8 Vershoks	= 1 Stopa =	14
2 Stopas, or 16 Vershoks	= 1 Arschine* =	28
3 Arschines	= 1 Saschen =	Feet. 7
500 Saschens	= 1 Verst =	{ 3500ft., or 6629 miles, or 5 Furlongs, 12 Poles, 2 feet.

The Fuss is equal to 13·75 inches, the Moscow Foot to 13·18 inches, and the Paletz to ¼ an inch.

The Lithuanian Meile is equal to 9781 yards, or 5·5574 miles.

Since 1831 the English Foot of 12 Inches, each Inch of 10 parts, has been used as the ordinary standard of length measures. The Rhein Fuss (28530 to a Lithuanian Meile) is used in calculating the export duties on timber. 103 English Feet = 100 Rhein Fuss.

MEASURES OF SURFACE.

<i>Russian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
9 Square Archines	= 1 Square Sachine =	Sq. Inches. 784
2400 Square Sachines	= 1 Desatine =	Square Yard. 13067

The *Desatine* is equal to 2 Acres, 2 Roods, 32 Poles, English.

MEASURES OF CAPACITY FOR LIQUIDS.

<i>Russian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
	1 Tsharkey =	Of a Gill, nearly. ·86
100 Tsharkeys	= 1 Vedro =	Imperial Gallons. 2·7049
3 Vedros	= 1 Anker =	8·1147
40 Vedros	= 1 Sarokowaja =	108·196

\* Used in Cloth Measure.

100 Vedros are equal to 270·6955 British Imperial gallons. The Kruschka is a measure equal to 10 Tsharkeys or the  $\frac{1}{10}$ th of a Vedro, and equivalent to 1·08196 Imperial Quart.

### MEASURES OF CAPACITY FOR DRY GOODS.

<i>Russian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
	1 Garnietz =	Impl. Quarts. 5·7696
2 Garnietz	= 1 Tschetwerka =	{ Impl. Gallons 1·4424 or Bushels. 1·1803
4 Tschetwerkas	= 1 Tschetwerik =	{ Pecks. 2·8852 or Bushel. 1·7213
2 Tschetweriks	= 1 Pajak =	Bushels. 1·4426
2 Pajaks	= 1 Osmin =	2·8852
2 Osmins	= 1 Tschetwert =	5·7704
16 Tschetwerts	= 1 Last =	Impl. Quarters. 11·5408

A *Tschetwert* is usually reckoned as equal to  $5\frac{1}{4}$  Imperial Bushels, and 100 *Tschetwerts* to 72 Imperial Quarters, but its more exact value is 72·1808 Imperial Quarters. At St. Petersburg a *Tschetwert* is sometimes reckoned at  $70\frac{1}{4}$  Imperial Quarters. 100 British Imperial Quarters are equal to 138·637 *Tschetwerts*.

### WEIGHTS.

<i>Russian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
	1 Dolis = $\frac{1}{3}$ of a Troy Grain	
96 Dolis	= 1 Zolotnick = 2 Dwts. $17\frac{1}{4}$ Grns. Troy	(1)
8 Zolotnicks	= 1 Lotti = 8 " $5\frac{1}{2}$ " "	(2)
8 Zolotnicks	= 1 Lana = $1\frac{1}{4}$ Ounces Av.	(3)
12 Lanass, or 82 Lotti	= 1 Funt (Pound) = 14 $\frac{1}{2}$ " "	(4)
40 Funts	= 1 Pud (or Pood) = 1 Qr. $8\frac{1}{10}$ lbs.	(5)
10 Puds	= 1 Berkovitz = 3 Cwt. 0 " $25\frac{1}{4}$ " "	(6)
8 Berkovitz	= 1 Packen = 9 " 2 " $19\frac{1}{4}$ " "	(7)

The Pud (or Pood) is very commonly estimated at 36 lbs. Avoirdupois. The Nuremberg Pound, used by Apothecaries, is equal to 5527 Troy Grains. The Dutch Carat, used in weighing pearls and precious stones, is equal to about  $3\frac{1}{2}$  Troy Grains.

## POLAND.

Since 1881 the legal measures have been those of Russia. Previous to that date they were as follows:—

## MEASURES OF LENGTH.

<i>Polish value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
	1 Cal	= Inches. 9844
6 Calow	= 1 Cwierc	= 5·6064
2 Cwierc	= 1 Stopa	= 11·2128
		Ft.
2 Stopas	= 1 Loziec	= 1·8688 or 22·4256
3 Loziec	= 1 Sazen	= 5·6065
	1 Stopa of Cracow	= 14·08
		Yards.
	1 Pretow	= 4·7245
10 Pretow, or 100 Precikow, or 1800 Calow	= 1 Sznurow	= 47·245

## ITINERARY MEASURE.

The Verst of Russia is the unit of distance measures.

		<i>Yds.</i>	<i>Miles.</i>
The Short Mile	=	6075	or 3·452
The Long Mile	=		4·6028

The Mile is divided into 8 Stafe.

A League = 8 Versts, or 29638 Stopas = 5·8048 Miles.

## SURFACE OR SQUARE MEASURES.

<i>Polish value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
	1 Morgow	= Acres. 1·8829
80 Morgow	= 1 Wloka	= 41·486

The Morgow is subdivided into 90 Square Sznurow, each Square Sznurow into 100 Square Pretow, each Square Pretow into 100 Square Precikow.

## AUSTRIA.

## MEASURES OF LENGTH.

<i>Austrian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>		
	1 Punkte	=	Lines. 0864	Inches.
12 Punkte	= 1 Linie	=	1.0868	or 0864
12 Linien	= 1 Zoll	=	12.4416	„ 1.0871
			Feet.	
12 Zoll	= 1 Fuss	=	1.0871	„ 12.445
2 Fuss	= 1 Elle	=	2.0742	„ 30.6756
			Yards.	
6 Fuss	= 1 Klafter	=	6.2226	„ 2.7042
			Yards.	Miles.
4000 Klafter	= 1 Meile (Post)	=	8297	or 4 156.992
			British Statute Miles. or about 4½	

The Bohemian Elle of 22.548 Vienna Zoll is equal to 23.85 Inches English. In Trieste the Elle for woollen goods = 26.6, and that for silk goods 25.22 English Inches. The Elle of Upper Austria is equal to about 31.5 Inches English. 100 English Yards are equal to 117.34 Vienna Ellen.

## MEASURES OF SURFACE.

<i>Austrian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>		
	1 Square Zoll	=	Sq. Lines. 154½	Sq. Inches. 1.9756229
144 Square Zoll	= 1 Square Fuss	=	Sq. Feet. 1.0756229	Sq. Inches. or 154½
36 Square Fuss	= 1 Square Klafter	=	Sq. Yards. 4.8025	
8¼ Square Klafter	= 1 Square Ruthe	=	35.52088	
192 Sq. Ruthen	= 1 Metze	=	2294½	
			Sq. Yds.	Statute Acre.
8 Metzen or 1600 Sq. Klafter	} = 1 Yoch or Johart	=	6884	or 1.42281

The Yoch or Johart is nearly equal to 1½ British statute Acre. An Austrian square Meile is equal to 14200 British statute Acres.

## MEASURES OF CUBIC CAPACITY OR SOLIDITY.

<i>Austrian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
	1 Cubic Zoll =	Cubic Inch. 1.1153
1728 Cubic Zoll =	1 Cubic Fuss =	Cubic Foot.      Cubic Inches. 1.115157658 or 1926.991396
216 Cubic Fuss =	1 Cubic Klafter =	Cubic Feet.      Cubic Yards. 240.6882 or 8.9216

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Austrian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
8 Probmetsen	= 1 Becher	= Bushels. .0182
4 Becher	= 1 Futtermassel	= .0529
2 Futtermassel	= 1 Muhlmassel	= .1057
2 Muhlmassel	= 1 Achtel	= .2115
2 Achtel	= 1 Viertel	= .4230
4 Viertel	= 1 Metze	= 1.6918
80 Metzen	= 1 Muth	= { 50.7586 or Quarters. 6.8442

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Austrian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
2 Pfiff	= 1 Seidel	= { Imperial Pint. .6282 Gills. or 2½
2 Seidel	= 1 Kanne	= Imperial Pint. 1.2464
2 Kannen	= 1 Mass	= Quart. 1.2464
10 Mass	= 1 Viertel	= Gallons. 3.1148
4 Viertel	= 1 Eimer	= 12.4572
82 Eimer	= 1 Fuder	= 398.6804

## WEIGHTS (COMMERCIAL).

4 Pfenning	= 1 Quentchen	=	Drachms.	
4 Quentchen	= 1 Loth	=		2·4694
2 Loth	= 1 Unze	=	Ounce.	1 3·7552
4 Unzen	= 1 Vierdinge	=	4	15·0208
2 Vierdinges	= 1 Mark	=	9	14·0416
2 Marks	= 1 Pfund	=	{	lbs. Avotr.
				1·2347 or
			lbs. Oz. Drachms.	1 9 12·0832
100 Pfund	= 1 Centner	=	lbs. Av.	123·47

A Pfund (Tariff) is equal to 1·10, and a Centner (Tariff) to 100 lbs. Avoirdupois.

## SILVER AND SILVER MONEY WEIGHTS.

The *Mark*, subdivided into 2 Vierdinge, or 8 Unzen, or 16 Loth, or 64 Quentchen, or 256 Pfenning, is the chief unit employed in weighing silver and silver money. It is equal to 4331·019 English Troy Grains = 9 oz. 0 dwts. 11·019 grs. 100 Vienna Marks are equal to 75·191 English Troy Pounds.

## APOTHECARIES' WEIGHT.

<i>Austrian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
20 Gran	= 1 Scruple	= (1) Troy Grains. 22·52
3 Scruple	= 1 Drachme	= (2) Dwts. 2 19·536
8 Drachmen	= 1 Unze	= (3) Oz. 1 2 12·384
12 Unzen	= 1 Pfund	= (4) 18 10 4½

The Apothecaries' Pfund is  $\frac{3}{4}$ ths of the Commercial Pfund, that is, it is equal to 1½ Marks, or 24 Loth.

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(1) ·0469 Oz. Troy; (2) 67·55 Grains, or ·1407 Oz. Troy; (3) 540·4 Grains, or 1·268 Oz. Troy; (4) 6484·8 Grains, or 13·510 Oz. Troy.



*To face p. 181 of the "Merchants' Handbook."*

From 1st January, 1872, under the law of 13th June, 1868, the Metric System of Weights and Measures (see France, pp. 119-122) became compulsory for the whole of the German Empire.

#### METRIC MEASURES OF LENGTH.

The Metre, or Stab\* ; Centimetre, or New-Zoll\* ; Millimetre, or Strich\* ; Dekametre, or Kette\* (Chain); and Kilometre. The Mile of 7,000 Metres is the measure of distance.

#### METRIC MEASURES OF SURFACE.

Square Metre, or Quadrat-Stab ; Ar, or 100 Square Metres ; and Hectar, or 1,000 Square Metres.

#### METRIC MEASURES OF CAPACITY.

The Cubic Metre is the basis ; the Litre or Kanne\* is the unit, and is the  $\frac{1}{1000}$ th part of a Cubic Metre ;  $\frac{1}{2}$  Litre, or  $\frac{1}{2}$  Kanne = Schoppen (chiefly a beer measure) ;  $\frac{1}{4}$  Litre ;  $\frac{1}{8}$  Litre ; and  $\frac{1}{16}$  Litre ; Hectolitre or Fass\* (cask) ; 50 Litres, or  $\frac{1}{2}$  Hectolitre, or Scheffel\* (bushel) ;  $\frac{1}{4}$  Hectolitre, or 25 Litres, or  $\frac{1}{4}$  Bushel.

#### METRIC WEIGHTS.

The Kilogramm is the unit of weight ; it is the weight of a litre of distilled water at 4° Centigrade ; the Dekagramm, or New-Loth\* = 10 Gramms ; the Dezigramm ; Zentigramm ; Milligramm ; Pfund =  $\frac{1}{2}$  Kilogramm or 500 Gramms ; Zentner\* or 50 Kilogramms, or 100 Pfunds ; and Tonne, or 100 Kilogramms, or 200 Pfunds.

The old system of Weights and Measures is as given, pp. 181-187.

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\* The names Stab, Zoll, Strich, Kette, Kanne, Schoppen, Scheffel, Loth, Pfund, and Centner, assigned as alternative names in the Metric System, were denominations in the old system, whose value varied in the different States, as appears in pp. 181-187 ; but their value in the Metric System is the same for the whole of Germany. In each case where an old name is applied to a new weight or measure, the old name must be preceded by the Metric name.



GERMANY, (North).

PRUSSIA.

MEASURES OF LENGTH.

North German value.	Systematic name.	Approximate English value.	
		Lines.	Inches.
	1 Linie	= 1·029	or = ·0859
12 Linien	= 1 Zoll	= 12·856	„ = 1·029
12 Zoll	= 1 Fuss	= 1·02966	„ = 12·856
		Feet.	
2 Fuss	= 1 Elle	= 2·0596	
		Yards.	
6 Ellen or 12 Fuss	= 1 Ruthe	= 12·8576	„ = 4·1192
		Impl. Yds.	Miles.
2000 Ruthen	= 1 Meile	= 8238½	„ = 4·6806

The chief measures of length are the *Fuss* and the *Elle*, but the value of these measures and of their subdivisions varies in different states and often in different provinces of the same state. The following are a few of the variations in the length of the *Fuss* in North Germany.

The Fuss in		Inches.	English	Feet.
Brunswick	=	11·230	=	·935
Hanover	=	11·484	=	·957
Hessia (Electorate)	=	11·816	=	·943
Oldenburgh	=	11·640	=	·970
Prussia	=	12·856	=	1·029
Saxony	=	11·155	=	·929

The *Lachter*, of 6 *Fuss*, and the *Spanne* of 9 *Fuss*, are measures used by miners. The *Lachter* is equal to 6·864 English Feet, and the *Spanne* to 10·2975 English Inches.

The *Lachter* is divided into 8 *Achtel*, each of 10 *Lachterzoll*, and each *Lachterzoll* of 10 *Lachterlinien*.

The Decimal System in Measures of Length is being introduced into the country, and Engineers and Surveyors now use it.

## SURVEYORS' MEASUREMENT.

<i>Prussian value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
	1 Scrupel	= Inches. ·0148
10 Scrupel	= 1 Linie	= ·1482
10 Linien	= 1 Zoll	= 1·4828
10 Zoll	= 1 Land Fuss	= { 14·828 or Foot. 1·2856
10 Land Fuss	= 1 Ruthe	= { Feet. 12·856
2000 Ruthen	= 1 Meile (Post)	= { Miles. 4·6807

## MEASURES OF SURFACE.

<i>North German value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
144 Square Linien	= 1 Square Zoll	= { Square Lines. Square Inch. 152·4672 or 1·05884
144 Square Zoll	= 1 Square Fuss	= { Square Foot. Square Inches. 1·05884 or 152·4672
144 Square Fuss	= 1 Square Ruthe	= { Square Yards. 16·96.
180 Square Ruthen	= 1 Morgen	= { Sq. Yds. Rds. Fla. 8054 or 2 21 nearly
80 Morgen	= 1 Hufe	= { Sq. Yds. Acres. 91820 or nearly 19
100 Morgen	=	about 63·094 English Acres.

## MEASURES OF CUBIC CAPACITY.

<i>North German value.</i>	<i>Systematic name.</i>	<i>Approximate English value.</i>
1728 Cubic Linien	= 1 Cubic Zoll	= { Cubic Lines. 1886·69952 or Cubic Inches. 1·09184
1728 Cubic Zoll	= 1 Cubic Fuss	= { Cubic Inches. 1886·69952 or Cubic Feet. or 1·09184
1728 Cubic Fuss	= 1 Cubic Ruthe	= { Cubic Feet. 1886·69952

100 Prussian Cubic Fuss are equal to 109·184 English Cubic Feet.

Stone and brickwork, earth, peat, fascines, and firewood are measured by the Cubic Klafter of 108 Cubic Fuss = 117.91872 English Cubic Feet, or 3.8889 Steres. 4½ Klafter make 1 *Haufe*. In architecture the *Schachruthe* is 144 Cubic Fuss = 4.45188 Steres.

MEASURES OF CAPACITY FOR DRY GOODS.

North German value.	Systematic name.	English value. Quarts. Bushel.	Metric value. Litres.
4 Mässchen or 3 Quarts	-1 Metze	= 3.024 or .0945	= 3.485
4 Metzen	-1 Viertel	Gallons. = 3.024 or .878 Bushels. Quarters.	= 13.7403
4 Viertel or 48 Quarts	-1 Scheffel	= 1.5121 or .180	= 54.9615
4 Scheffeln	-1 Tonne	= 6.048 or .75604	= 219.846
12 Scheffeln	-1 Malter	= 18.1452 or 2.26815	= 659.588
5 Malters or 60 Scheffeln	-1 Last	=	13.60890 = 3297.690

5½ Scheffeln are nearly equal to 1 British Imperial Quarter, or, more exactly, 100 Scheffeln are equal to 18.901 British Imperial Quarters.

The Tonne given in the table, is the measure for salt, lime, and carbon; a Tonne of Flaxseed is 37½ Metzens, or 3.5595 British Imperial Bushels, or 129.388 Litres.

The *Wispel* is a measure varying in quantity. In wholesale business and in railway freight it is usually reckoned as 24 *Scheffeln*. The *Wispel* of wheat or barley is 25 *Scheffeln*, of oats it is 26 *Scheffeln*.

MEASURES OF CAPACITY FOR LIQUIDS.

North German value.	Systematic name.	English value. Pint. Quart. Gallon.	Metric value. Litres.
82 Cubic Zoll	-1 Ossel	= 1.0079 or .1259875	= .57251
2 Ossel	-1 Quart	= 1.0079 or .251975	= 1.1450831
60 Ossel	-1 Anker	= 7.55925	= 34.85095
2 Ankers	-1 Eimer	= 15.1185	= 68.7019
2 Eimers	-1 Ohm	= 30.237	= 137.4088
3 Eimers or 1½ Ohm	-1 Oxhoft	= 45.3555	= 206.1057
4 Oxhoft or 6 Ohm	-1 Fuder	= 181.422	= 824.4228

The Fuder and its subdivisions are used for wine and spirits. The *flasche* for wine is ¼ quart, and equals 1.512 British Imperial pint, or .858 Litre. In Beer Measure there are the following denominations, which, however, are rather names

of casks than definite measures. The *Gebraude* of 9 Kufen, or 18 Fass, or 36 Tonne, or 3600 Quarts. The Tonne of 100 Quarts is equal to 25.1975 British Imperial Gallons, or 114.503 Litres.

## WEIGHTS.

The *Zollpfund* is the unit of weight, and is equal to  $\frac{1}{2}$  Kilogramme, or 500 Grammes. 1 lb. Avoirdupois is equal to 0.907 Zollpfund, and 1 Zollpfund is equal to 1.10233 lbs. Av. In the Zollverein States, the subdivisions of the Zollpfund most generally used are the  $\frac{1}{2}$  and the  $\frac{1}{10}$  Zollpfund.

North German Value.	Systematic name.	English value.	Metric value.
		Drams Av.	Grammes.
10 Corn	= 1 Cent	= .09407	= .166
10 Cents	= 1 Quentche	= .9407	= 1.66
10 Quentchen	= 1 Loth	= 9.406464	= 16.6
		lbs. Av.	Kilogrammes.
30 Loth	= 1 Zollpfund	= 1.102	= .500
100 Zollpfund	= 1 Centner	= 110.232	= .50

20 Zollpfund = 1 Stein; 3 Centner = 1 Schiffspfund; 40 Centner = Schiffsalast.

This Decimal System of Weights, with the *Half-Kilogramme* (500 Grammes) or Zollpfund as its unit, has been, or is being adopted in almost all the States of Germany. In Commercial Weights the Zoll-Centner is divided into 100 Pfund, the Pfund into 32 Loth, the Loth into 4 Quentchen, and the Quentche into 4 Pfennige.

## APOTHECARIES' WEIGHT.

North German value.	Systematic name.	English value.	Metric value.
		Grains Troy.	Grammes.
20 Gran	= 1 Scrupel	= 18.8	= 1.21799
3 Scrupel	= 1 Drachme	= 56.4	= 3.65899
8 Drachmen	= 1 Unze	= 451.2	= 29.23198
		Oz. Troy.	Grammes.
12 Unzen	= 1 Pfund	= 11.2779	= 350.78826

## GOLD, SILVER, AND JEWEL WEIGHTS.

The Pfund of 500 Grammes is now used for the precious metals, formerly the Mark was the weight used. It = 3608.9506 English Troy Grains, or 233.855 Grammes, and is divided for gold into 24 Carats, each of 12 Grains, and for silver into 16 Loth, each of 18 Grains. Precious stones are weighed by the Carat, 160 Carats being equal to 9 Quentchen.

**SAXONY. (Kingdom of)**

A Decimal System of Weights and Measures, similar to that of France, (*see France*.) came into operation on the 1st November, 1858, but the old system given below is still in very common use. It is as follows:—

**MEASURES OF LENGTH.**

<i>Saxon value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Linie =	Line. ·92912	
12 Linien = 1 Zoll =		11·149414 or Feet. ·92912 =	Metre. ·02839
12 Zoll = 1 Fuss =		11·149414 „ Inches.	·28319
2 Fuss = 1 Elle =		22·298828 „	1·85824 = ·56638
2 Ellen = 1 Stab =		44·597656 „	3·71648 = 1·18276

The *Ruthe* is the name of a Land Measure, and also of a *Road Measure*. In Land Measure it contains 15 Fuss, 2 Zoll; and is equal to 4·69721 English Yards, or 4·29504 Metres. In Road Measure it contains 16 Fuss, and is equal to 4·955306 Yards English, or 4·53104 Metres. The *Lachter* used by miners is equal to 2 Metres, or 2·18726 English Yards.

The *Meile Post* formerly contained 2000 Ruthen, or 16000 Ellen, but since 1841 it consists of 13241·987 Ellen, and is equal to 7500 French Metres, or 1·01072 Geographical Mile, or 4·660368 English Miles.

The Leipsic Foot of 12 Zoll, each of 12 Linien, is equal to 11·1494 English inches, or to ·28319 of a French Metre. A Leipsic Elle (of 2 Leipsic Fuss) is equal to 1·85838 English Feet. 7 Leipsic Ellen are equal to 6 Prussian Ellen, or to 4 French Metres. 8 Leipsic Ellen are nearly equal to 5 English Yards.

**MEASURES OF SURFACE.**

The Square Fuss of 144 Square Zoll is equal to ·86326 English Square Foot, or 124·31001 Square Inches English, or ·081196576 Square Mètres, and the Acker of 900 Square Ruthen is equal to 55·8428256 French Ares, or 1 Acre, 1 Rood, 18 Poles English statute measure.

**MEASURES OF CUBIC CAPACITY.**

The Cubic Fuss of 1728 Cubic Zoll is the chief Measure of Cubic Capacity, it is equal to ·8020758238 English Cubic Foot, or ·0227108683 Cubic Mètre. In the measurement of firewood there is the *Schragen* of 8 *Klafter*. The *Klafter* contains 108 Cubic Fuss (i. e., 6 Fuss high, 6 Fuss broad, by 6 Fuss thick); and is equal to 86·62418896 English Cubic Feet, or 2·45277878 Cubic Mètres.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Saxon value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Mäsche =	1.446302 = Quart. Imperial Gallons.	1.64285 Litres.
4 Mäschen =	1 Metze =	1.446302 =	6.5714
4 Metzen =	1 Viertel =	5.785208 =	26.2857
		Imperial Bushels.	
4 Viertel =	1 Scheffel =	2.892704 =	105.1429
12 Scheffel =	1 Malter =	34.712448 =	1261.7148
2 Malter =	1 Wispel =	69.424896 =	2523.4236

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Saxon value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Quartier	= 84368 = Gill.*	11695 Litres.
4 Quartier	= 1 Nossel	= 3.97472 =	46779
		Imperial Pints.	
2 Nossel	= 1 Kanne	= 1.64786 =	93559
36 Kannen	= 1 Anker	= 7.42368 =	33.68124
72 Kannen, or 2 Anker	} = 1 Eimer	= 14.82624 =	67.36284
8 Eimer	= 1 Oxhott	= 7.41812 =	202.08744
6 Eimer	= 1 Fass or Barrel	= 98.98744 =	404.17488

In French wines the Oxhott is reckoned at 8, but in French brandy at 8½ Dresden Eimer. The *Ohm* is a measure of 2 Eimer or 4 Anker. In beer measure 420 Kannen=1 Fass; the Viertel is 210, and the *Tonne* 105 Kannen.

The above are the Dresden standards of liquid measures, and are those most generally used in Saxony.

## LEIPSIK.

In Leipsic there are two Kannen of different sizes, in use, namely, the publicans' Kanne, called *Schenk-Kanne*, and the excise Kanne, called *Visir-Kanne*. The *Visir-Kanne* = 2.47288, and the *Schenk-Kanne* = 2.11997 British Imperial Pints, or 1.4044 and 1.204 litre respectively. The Leipsic Eimer contains 54 *Visir-Kannen*, or 63 *Schenk-Kannen*. The *Fuder* is 12 Eimer. The Kanne, which goes under the name of the "Dresden Kanne" in Leipsic, is a little smaller than the real Dresden Kanne, and is equal to 1.644489 British Imperial Pint, or .98898 litre. A Leipsic Eimer of 63 *Schenk-Kannen* contains 81 Dresden Kannen of the Leipsic standard, and is equal to 16.69476 British Imperial Gallons, or 75.852 litres. Nine Dresden Eimer are commonly reckoned equal to 8 Leipsic Eimer. In beer measure the *Gebräude* of 8 *Kufe*,

\* A little less than 1 Gill.

each of 2 Fass, each of 2 Viertel, each of 2 Tonne, each of 75 Kannen (Schenk-Kannen), each of 2 Nössel. The beer Eimer is 72 Schenk-Kannen, and is equal to 18·07974 British Imperial Gallons, or 86·688 litres. The Tonne = 19·874729 British Imperial Gallons, or 90·300 litres. The Viertel = 39·749459 British Imperial Gallons, or 180·6 litres. The Fass = 79·498918 British Imperial Gallons, or 361·2 litres. The Kufe = 158·99788 British Imperial Gallons, or 722·4 litres. The Gebräude = 1271·98269 British Imperial Gallons, or 5779·2 litres.

WEIGHTS.

Same as Prussia, viz., the *Zollfund* with its decimal subdivisions and multiples. (See Prussia).

HANOVER.

MEASURES OF LENGTH.

<i>Hanoverian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Linie =	Of a Line. ·95838 =	Metres. ·002028
12 Linien	= 1 Zoll =	Lines. 11½ =	·0248412
12 Zoll	= 1 Fuss* =	Inches. 11½ =	·2920947
2 Fuss	= 1 Elle =	28 =	·5841894
3 Ellen or 6 Fuss	= 1 Klafter =	Feet. 5½ =	1·7525682
16 Fuss	= 1 Ruthe =	Yards. Inches. 5 4 =	4·6785152
1587½ Ruthen†	= 1 Meile =	Miles. 4·61016 =	7419·20538

In thread and yarn measurement the unit is the *Stück* or *Lop* of 10 Gibenden (Skeins) or 90 Faden (threads); but sometimes these are only 82 or 87 Faden to the Stück. 20 Lop = 1 Bund. The length of the Faden is 8½ Ellen.

MEASURES OF SURFACE.

<i>Hanoverian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Square Linie =	Sq. Line. ·9184 =	Sq. Metres. ·000004
144 Square Linien	= 1 Square Zoll =	Sq. Inch. ·9184 =	·0006
144 Square Zoll	= 1 Square Fuss =	Sq. Feet. ·9184 =	·085319
256 Square Fuss	= 1 Square Ruthe =	Square Yards. 26·12327 =	21·84174
120 Square Ruthen	= 1 Morgen =	3134·79300 =	2621·00981‡

\* 24 Hanoverian feet are equal to 28 English Feet.  
 † 12700 Ellen, or 25400 Fuss.  
 ‡ 26·21009 French Area.

## MEASURES OF CUBIC CAPACITY.

The chief unit is the Cubic Fuss of 1728 Cubic Zoll, the Zoll being subdivided into 1728 Cubic Linien. The Cubic Fuss is equal to 1520·875 Cubic Inches English, or ·024921319 of a French Cubic Metre. The *Klafter* of 144 Cubic Fuss is the chief measure for wood, it is equal to 3·58867 French Steres. The Malter of Kalenberg or Hanover, measure for timber, is 80 Hanoverian or Kalenberg Cubic Fuss, and is equal to 1·9937 French Steres.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Hanoverian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Bushels.	Litres.
4 Sechzehntel	= 1 Spint	= 21426	= 7·788
4 Spint or Metzen	= 1 Himten	= 85704	= 31·152
6 Himten	= 1 Malter	= 5·14224	= 186·912
8 Malter	= 1 Wispel	= 5·14224	= 1495·296
16 Malter or 2 Wispel	= 1 Last	= 10·28448	= 2990·592

The Vierup is  $1\frac{1}{2}$  Himten, or 2 Hanoverian Cubic Fuss, and equals 49·843 French Litres, or 1·371265 British Imperial Bushels. A Tonne is 4 Vierup, and 15 Tonne make 1 Last. The Krug is  $\frac{1}{3}$  part of the Vierup, it is used both for dry and liquid measure. It is  $\frac{1}{8}$ ths of a Himten, and equals 1·38452 Litre. 22 $\frac{1}{2}$  Krug = 1 Himten or 8 Stubchen.

100 Himten are equal to 10·713 English Imperial Quarters. The Himten is equal to  $1\frac{1}{2}$  Hanoverian Cubic Fuss, or 2160 Cubic Zoll. The Last = 29·90592 Hectolitres.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Hanoverian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Pints.	Litres.
2 Nössel	= 1 Quartier	= 1·714092	= 793489
2 Quartier	= 1 Kanne	= 1·714092	= 1·946976
2 Kannen	= 1 Stubchen	= 3·428184	= 3·893956
2 Stubchen	= 1 Viertel	= 1·714092	= 7·787912
5 Viertel	= 1 Anker	= 8·57046	= 38·939560
8 Viertel	= 1 Eimer	= 13·712736	= 62·303296
4 Anker	= 1 Ohm	= 34·28184	= 155·758240
1 $\frac{1}{2}$ Ohm	= 1 Oxhott	= 51·422276	= 233·63736
4 Oxhott or 6 Ohm	= 1 Fuder	= 205·69104	= 934·54944

Hanover, as also Oldenburg and Schaumburg-Lippe, use the following special measures in collecting the customs of the

\* 8 Himten = 5 Vierup.



Zollverein Union:—the *Steuer-Ohm* of 40 *Steuer-Stubchen*, each of 4 *Steuer-Quartiers*. The *Steuer-Quartier* is exactly equal to the Brunswick Quartier. It is equal to .962356 Hanoverian Quartier, or .986844 French Litre.

## WEIGHTS.

The weights are now the same as those of Prussia, which see. Formerly they were the Pfund of 32 Loth, each of 4 Quentchen = 467.71101 Grammes; the Centner of 100 Pfund, and the Last of 40 Centner.

## HESSE-ELECTORATE, or, HESSE-CASSEL.

## MEASURES OF LENGTH.

<i>Cassel value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inch.	Metre.
12 Linien = 1 Zoll =		.94391	.023975
12 Zoll = 1 Fuss =		.94391	.287699
2 Fuss = 1 Elle =		1.88782	.575398

The Brabant Elle is also used. It is equal to 2.27796 English Feet, or .69481 Metre. The Ruthe of 14 *Old*\* Cassel Fuss = 4.862289 English Yards, or 3.98876 Mètres. It is now only used in land measure.

## MEASURES OF SURFACE.

The Square Ruthe = 19.029139 English Square Yards, or 15.9102 Square Mètres. The Acker of 150 Square Ruthen = 2854.36986 English Square Yards, or .58974 Acre, or 23.865 Ares.

## CUBIC MEASURES.

1728 Cubic Zoll = 1 Cubic Fuss = .8409918 English Cubic Foot. The Klafter of (5 × 5 × 6 Fuss) = 150 Cubic Fuss = 126.14877 English Cubic Fuss, or 3.572 Steres. The Klafter of Hanau is 144 Cubic Fuss = 121.10281 English Cubic Feet, or 3.4291 Steres. 24 Cassel Klafter = 25 Hanau Klafter.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Cassel value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Quarters	Litres.
4 Mäaschen = 1 Metzen =		.084548	10.04612
4 Metzen = 1 Himten =		.138195	40.1845
8 Metzen = 1 Scheffel =		.27639	80.3691
2 Scheffel = 1 Viertel =		.55278	160.7382
4 Viertel = 1 Malter =		2.21112	642.9528

\* 1 Cassel Fuss = 1.0098 Old Cassel Fuss.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Cassel value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Pint.	Litres.
	1 Schoppe =	·85816 =	·487375
		Gallons.	
4 Schoppen =	1 Maass =	·42908 =	1·94950
4 Maass =	1 Viertel =	1·71632 =	7·7980
20 Viertel =	1 Ohm =	34·3264 =	155·96
6 Ohm =	1 Fuder =	205·9584 =	935·76

The measures in the table are used for Wine, Brandy, and Vinegar. The Beer Ohm, also divided into 20 Viertel, each of 4 Maass, each of 4 Schoppen, is equal to 38·172673 British Imperial Gallons, or 174·755 Litres, and the Viertel, Maass, and Schoppe, in proportion. 8 Beer Ohm are equal to 8·964 Wine Ohm, but in round numbers 8 Beer Ohm are usually reckoned equal to 9 Wine Ohm.

## WEIGHTS.

The Pfund of 500 French Grammes, with its divisions and multiples, as in Prussia, is beginning to be pretty generally used (see Prussia), but the former system is still common, viz: In wholesale trade the (*Schwere*) heavy Pfund of 32 Loth, each of 4 Quentchen = 1·06755 lbs. av. English, or 484·2425 French Grammes. In retail trade the (*Leichte*) light Pfund, with the same divisions = 1·03136 lbs. av. English, or 467·812 French Grammes. 57 *Schwere* Pfund are equal to 59 *Leichte* Pfund. The Centner = 108 Pfund, heavy or light.

## SAXE-ALTENBOURG.

*Length.*—Fuss of 12 Zoll = 11·1222 English Inches, or ·2825 Mètre. Elle of 2 Fuss = 1·8537 English foot, or ·5650 Mètre. The Surveyors' Fuss is exactly equal to the Elle. It is divided into 10 Zoll of 10 Linien. The Meile is 13242 Ellen = 8182·2318 English Yards, or 4·648995 English Miles, or 7·48173 Kilomètres.

*Surface.*—Acker of 200 Square Ruthen = 64·431 Ares, or 7706·24398 English Square Yards, or 1·592199 English Acre. The Hufe is 12 Acker.

*Capacity.* (a) *dry goods.*—Malter of 2 Scheffel, each of 4 Viertel, each of 4 Metzen, each of 4 Mäschen = 1·010 British Imperial Quarter, or 293·9436 Litres. Scheffel = 4·040, and Viertel = 1·010, British Imperial Bushels, or 146·9718, and 36·74295 Litres respectively. Metzen = 4·040, and Mäschen = 1·010 British Imperial Gallons, or 9·18573 and 2·29643

Litres respectively. A Sack is 3 Viertel. (*b*) *liquids*.—Eimer of 60 Kannen, each of 2 Nössel. In Beer Measure the Tonne is 1½ Eimer. A Tonne = 2 Metzen, and 128½ Kannen = 1 Scheffel, but it is the custom to reckon only 126 Kannen to the Scheffel.

*Weights*.—The same as those of Prussia, which see.

## SAXE-COBURG-GOTHA.

### MEASURES OF LENGTH.

<i>Gotha value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		inches.	mètre.
12 Linien = 1 Zoll =		·94365	= ·02396
12 Zoll = 1 Fuss =		11·3238	= ·28762

An Elle is equal to ·61532 English Yard, or ·562641 Mètre. A Ruthe, Land Measure, of 14 Fuss = 13·2111 English Feet, or 4·0264 Mètres. A Ruthe, Forest Measure, of 16 Fuss = 15·0984 English Feet, or 4·6016 Mètres. A Lachter is 7 Saxony Fuss.

### MEASURES OF SURFACE.

An Acker, Land Measure, is 140 Square Ruthen, Land Measure, and equals 2714·9603166 English Square Yards, or ·560942 English Acre, or 2269·6655744 Square Mètres. An Acker, Forest Measure, is 160 Square Ruthen, Forest Measure, and equals 4052·6521344 English Square Yards, or ·837324 English Acre, or 3387·9556096 Square Metres. The Hufe is 30 Acker. It is divided into ½, ¼, ⅓ Hufe.

### CUBIC MEASURES.

The Klafter for Wood = (6 × 6 × 3) = 108 Cubic Fuss = 8·40297 English Cubic Foot, or 2·4389 Cubic Mètres.

### MEASURES OF CAPACITY FOR DRY GOODS.

<i>Gotha value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Quarts.	Litres.
4 Nössel = 1 Mässchen =		2·42736	= 2·75725
4 Mässchen = 1 Metzen =		Gallons. 2·42736	= 11·02900
4 Metzen = 1 Viertel =		Quarter. ·15171	= 44·116
2 Viertel = 1 Scheffel =		·30342	= 88·232
2 Scheffel = 1 Malter =		·60684	= 176·464

## OLDENBURG.

## MEASURES OF LENGTH.

<i>Oldenburg value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
12 Linien	= 1 Zoll	Lines. = 11·649	= Metres. ·024656
12 Zoll	= 1 Fuss	Inches. = 11·649	= ·295879
18 Fuss	= 1 New Ruthe	Feet. = 17·4735	= 5·32582
20 Fuss	= 1 Old Ruthe	= 19·415	= 5·91758

The Elle is equal to ·63529 English Yard, or ·5809 Mètre. An Oldenburg Meile contains 33357 Oldenburg Fuss, or 1667 Old Ruthen, 17 Fuss, and is equal to 6·1328 English Miles, or 9·8693558 Kilomètres. There is also in use the Geographical or German Meile of 25079 Oldenburg Fuss, and equal to 4·610878 English Miles, or 7·42084944 Kilomètres.

## MEASURES OF SURFACE.

<i>Oldenburg value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Sqr. Fuss	Sq. Yd. = 1·04706	= Sq. Metres. ·0875449
324 Sq. Fuss	= { 1 New Square Ruthe }	= 33·92479	= 28·8645717
160 New Square Ruthen	= 1 Jück	= { 5427·96692 or 1·1214907 } Acres.	= Acres. 45·8881472
400 Sqr. Fuss	= { 1 Old Sq. Ruthe }	= { 41·892460815 } Sq. Yd.	= Sq. Metres. 35·017989
350 Old Square Ruthen	= 1 Morgen	= { 14658·86128544 or 3·02869 } Acres.	= Acres. 122·562964

The Jück contains 5180, and the Morgen 140000 Square Fuss.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Oldenburg value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
4 Ort	= 1 Kanne	Imperial Quarts. = 1·25472	= Litres. 1·42518
16 Kannen	= 1 Scheffel	= 5·01888	= 22·803
8 Scheffel	= 1 Tonne	= 62736	= 182·424
1½ Tonne	= 1 Malter	Imperial Quarters. = ·94104	= Litres. 273·686
12 Malters	= 1 Last	= 11·29248	= 3283·632

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Oldenburg value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Gallons.	Litres.
4 Ort	= 1 Kanne	= 80234	= 1.378
26 Kanne	= 1 Anker	= 7.86094	= 35.698
6 Anker	= 1 Oxhoft	= 47.16504	= 214.183

The Anker is also divided into 40 Quartier; the Quartier = .19652 British Imperial Gallons, or 1.57216 British Imperial Pints, or .88985 Litre. For Beer Measure, there is the *Tonne* of 4 Henkeman, each of 28 Bier-Kannen = 159.61 Litres. The Bier-Kanne is larger than the Wine-Kanne, and is equal to 1.425 Litre, or .31868 British Imperial Gallon, or 1.25455 British Imperial Quarts.

## WEIGHTS.

Same as in Prussia (see Prussia).

## BIRKENFELD.

The Weights and Measures are the same as those of Prussia.

## ANHALT.

The Weights and Measures are the same as those of Prussia.

## SCHWARZBURG-SONDERHAUSEN.

(1.) High Sovereignty and Arnstadt.

## MEASURES OF LENGTH.

The Fuss and Elle are those of Leipsic (see Saxony). The Ruthe, in Land Measure, is 14, and in Road Measure, 16 Fuss: but sometimes this latter Ruthe is also used in Land Measure.

## MEASURES OF SURFACE.

The Acker of 160 Square Ruthen, each of 196 Square Fuss = 2993.43129074 English Square Yards, or .618545 English Acre: or 25.027 Ares: but when the Ruthe of 16 Fuss is used, then the Square Ruthe is 256 Square Fuss: and the Acker of 160 of such Square Ruthen = .807895 English Acre, or 32.688 Ares.

## CUBIC MEASURE.

The Klafter (Firewood) of 126 Cubic Fuss = 100·47211 English Cubic Feet, or 2·84 Steres.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Maass of 4 Viertel = 32·8016675 British Imperial Gallons, or 149·088 Litres.

## WEIGHTS, AND MEASURES OF CAPACITY FOR LIQUIDS.

Same as Leipsic. (see Saxony).

## (2.) Low Sovereignty and Sondershausen.

## MEASURES OF LENGTH.

The Fuss of 12 Zoll each of 12 Linien = 11·88091 English Inches, or ·2878 Mètre. The Surveyors' Fuss = 11·12303 English Inches, or ·28252 Mètre. The Ruthe of 14 Fuss = 12·976874 English Feet, or 3·95528 Mètre. The Elle is said to be exactly the Leipsic Elle, (see Saxony) but it is only equal to 1·84288 English Foot, or ·5617 mètre.

## MEASURES OF SURFACE.

The Acker of 120 Square Ruthen = 2245·328693 English Square Yards, or ·468909 Acre, or 18·778 Ares.

## CUBIC MEASURE.

The Malter of 64 Cubic Fuss = 53·87994624 English Cubic Feet, or 1·523 Stere.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Scheffel, each of 4 Metzen = 10·002298 British Imperial Gallons, or ·156285 Quarter, or 45·445 Litres. The Metzen = 2·500578 British Imperial Gallons, or 1·250286 Peck, or 11·86125 Litre.

## MEASURES OF CAPACITY FOR LIQUIDS.

The Kanne of 2 Maass, each of 2 Nössel = (for Brandy), 1·746687 British Imperial Quart, or 1·984 Litre. The Maass = 1·746687, and the Nössel ·8738486 British Imperial Pint, or ·992 and ·496 Litre respectively. The Beer Nössel = ·7941087 British Imperial Pint, or ·451 Litre.

## WEIGHTS.

The Pfund of 82 Loth, each of 4 Quentchen = 1·080056 lbs. Av. English, or 467·218 Grammes; the Loth = ·515028 oz. Av. English, or 14·60056 Grammes; the Quentchen = 2·060118 English Drachms Av., or 3·65014 Grammes. The Gold and Silver Weight is the Mark which is exactly half the Pfund.

## SCHWARZBURG-RUDOLSTADT.

## (1.) High Sovereignty.

## MEASURES OF LENGTH.

The Fuss of 12 Zoll each of 12 Linien = 15·047515 English Inches or ·8822 Mètre. The Ruthe of 16 Fuss = 6·08778486 English Yards, or 6·1152 Mètres. The Elle is the same as that of Leipsic (see Saxony). The Lachter is  $7\frac{1}{2}$  Fuss = 3·0652847 English Yards, or 2·8028 Mètres.

## MEASURES OF SURFACE.

The Acker of 160 Square Ruthen, or 40960 Square Fuss = 3901·8824474 English Square Yards, or ·80007 Acre, or 32·619 Ares.

## CUBIC MEASURE.

The Klafter is sometimes ( $6 \times 6 \times 8$  Fuss) 108, or sometimes ( $6 \times 6 \times 8\frac{1}{2}$  Fuss) 126 Cubic Fuss. The Klafter of 108 Cubic Fuss = 212·948 English Cubic Feet, or 2·427 Cubic Mètres. The Klafter of 126 Cubic Fuss = 248·489 English Cubic Fuss, or 2·882 Cubic Mètres.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Schaffel of 8 Achtel, each of 2 Metzen, each of 24 Nüssel = 5·152269 British Imperial Bushels, or 187·27296 Litres. The Achtel = 5·152269 British Imperial Gallons, or 23·40912 Litres. The Metzen = 2·5761347 British Imperial Gallons, or 11·70456 Litres. The Nüssel ( $87\frac{1}{2}$  Cubic Zoll) = ·85871157 British Imperial Pint, or ·48769 Litre.

## MEASURES OF CAPACITY FOR LIQUIDS.

The Eimer of 72 Maass each, of 2 Nüssel = 13·2488048 British Imperial Gallons, or 60·1704 Litres. The Maass =

## CUBIC MEASURE.

The Klafter (Firewood) of 126 Cubic Fuss = 100·47211 English Cubic Feet, or 2·84 Steres.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Maass of 4 Viertel = 32·8016675 British Imperial Gallons, or 149·033 Litres.

## WEIGHTS, AND MEASURES OF CAPACITY FOR LIQUIDS.

Same as Leipsic. (see Saxony).

## (2.) Low Sovereignty and Sondershausen.

## MEASURES OF LENGTH.

The Fuss of 12 Zoll each of 12 Linien = 11·33091 English Inches, or ·2878 Mètre. The Surveyors' Fuss = 11·12303 English Inches, or ·28252 Mètre. The Ruthe of 14 Fuss = 12·976874 English Feet, or 3·95528 Mètre. The Elle is said to be exactly the Leipsic Elle, (see Saxony) but it is only equal to 1·84288 English Foot, or ·5617 mètre.

## MEASURES OF SURFACE.

The Acker of 120 Square Ruthen = 2245·323693 English Square Yards, or ·463909 Acre, or 18·773 Ares.

## CUBIC MEASURE.

The Malter of 64 Cubic Fuss = 53·87994624 English Cubic Feet, or 1·523 Stere.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Scheffel, each of 4 Metzen = 10·002293 British Imperial Gallons, or ·156285 Quarter, or 45·445 Litres. The Metzen = 2·500573 British Imperial Gallons, or 1·250286 Peck, or 11·36125 Litre.

## MEASURES OF CAPACITY FOR LIQUIDS.

The Kanne of 2 Maass, each of 2 Nössel = (for Brandy), 1·746687 British Imperial Quart, or 1·984 Litre. The Maass = 1·746687, and the Nössel ·8733436 British Imperial Pint, or ·992 and ·496 Litre respectively. The Beer Nössel = ·7941067 British Imperial Pint, or ·451 Litre.



## WEIGHTS.

The Pfund of 32 Loth, each of 4 Quentchen = 1·030056 lbs. Av. English, or 467·218 Grammes; the Loth = ·515028 oz. Av. English, or 14·60056 Grammes; the Quentchen = 2·060113 English Drachms Av., or 3·65014 Grammes. The Gold and Silver Weight is the Mark which is exactly half the Pfund.

## SCHWARZBURG-RUDOLSTADT.

## (1.) High Sovereignty.

## MEASURES OF LENGTH.

The Fuss of 12 Zoll each of 12 Linien = 15·047515 English Inches or ·3822 Mètre. The Ruthe of 16 Fuss = 6·68778486 English Yards, or 6·1152 Mètres. The Elle is the same as that of Leipsic (see Saxony). The Lachter is  $7\frac{1}{2}$  Fuss = 3·0652347 English Yards, or 2·8028 Mètres.

## MEASURES OF SURFACE.

The Acker of 160 Square Ruthen, or 40960 Square Fuss = 3901·3824474 English Square Yards, or ·80607 Acre, or 32·619 Ares.

## CUBIC MEASURE.

The Klafter is sometimes ( $6 \times 6 \times 3$  Fuss) 108, or sometimes ( $6 \times 6 \times 3\frac{1}{2}$  Fuss) 126 Cubic Fuss. The Klafter of 108 Cubic Fuss = 212·948 English Cubic Feet, or 2·427 Cubic Mètres. The Klafter of 126 Cubic Fuss = 248·439 English Cubic Fuss, or 2·832 Cubic Mètres.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Schaffel of 8 Achtel, each of 2 Metzen, each of 24 Nössel = 5·152269 British Imperial Bushels, or 187·27296 Litres. The Achtel = 5·152269 British Imperial Gallons, or 23·40912 Litres. The Metzen = 2·5761347 British Imperial Gallons, or 11·70456 Litres. The Nössel ( $37\frac{1}{2}$  Cubic Zoll) = ·85871157 British Imperial Pint, or ·48769 Litre.

## MEASURES OF CAPACITY FOR LIQUIDS.

The Eimer of 72 Maass each, of 2 Nössel = 13·2433048 British Imperial Gallons, or 60·1704 Litres. The Maass =

1·471478 British Imperial Pint, or ·8557 Litre. The Nössel (32·13 Cubic Zoll) = ·735739 British Imperial Pint, or ·41785 Litre.

## WEIGHTS.

The Weights are the same as those of Schwarzburg-Sondershausen (which see).

## (2.) Low Sovereignty and Frankenhausen.

## MEASURES OF LENGTH.

The Fuss of 12 Zoll, each of 12 Linien, is the same as that of Prussia (see Prussia). The Elle is that of Leipsic (see Saxony).

## MEASURES OF SURFACE.

The Acker 160 Square Ruthen, or 40960 Square Fuss = 3909·874374 English Square Yards, or ·80782 English Acre, or 32·69 Ares.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Scheffel of 4 Viertel, each of 2 Metzen, each of 2 Mäschen.

## MEASURES OF CAPACITY FOR LIQUIDS.

The Eimer (Wine, Brandy, Vinegar), of 72 Maass, each of 2 Nössel. The Kanne is 2 Maass, or 4 Nössel. The Fass of 34 Stubchen, each of 4 Maass, is also used for Brandy. Beer is sold by the Ohm Kanne of 8 Maass.

## WEIGHTS.

The Weights are the same as those of Prussia, (which see).

## WALDECK AND PYRMONT.

## MEASURES OF LENGTH.

The Fuss of 12 Zoll, each of 12 Linien = 11·5120189 English Inches, or ·2924 Mètre. The Rhein Fuss is also used, it is equal to 12·356522 English Inches, or ·31385 Mètre. The Elle of 2 Fuss = 1·9186698 English Feet, or ·5848 Mètre.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Mütte of 4 Scheffel = 45·26596 British Imperial Gallons, or 205·664 Litres. The Scheffel (for Wheat, Barley, Rye, Peas,) = 11·31649 British Imperial Gallons, or 51·416 Litres. The Oats-Scheffel = 12·465835 British Imperial Gallons, or 56·638 Litres.

## MEASURES OF CAPACITY FOR LIQUIDS.

The Ohm of 16½ Eimer, each of Maass\* = 31·4342069 British Imperial Gallons, or 142·82 Litres. The Eimer = 1·8860524 British Imperial Gallons, or 8·5692 Litres. The Maass = 2·5147365 British Imperial Pints, or 1·4282 Litres.

## WEIGHTS.

The Weights are the same as those of Prussia (see Prussia). Formerly two systems of Commercial Weights were in use, namely, Heavy (*Schwere*) Weight, and Light (*Leichte*) Weight; the Pfund being in each system divided into 32 Loth, each of 4 Quentchen. The *Schwere* Pfund = 1·050194 lbs. Av. English, or 476·852 Grammes. The *Leichte* Pfund = 1·030480 lbs. Av. English, or 476·41 Grammes. The Pfund of 34 Loth (for Butter and Meat) = 1·09559 lbs. Av. English, or 496·943 Grammes.

## REUSS.

## MEASURES OF LENGTH.

The Fuss of 12 Zoll, each of 12 Linien, = 11·27973 English Inches, or 2865 Mètre. The Leipsic Fuss is also used (see Saxony). The Elle is 2 Fuss = 22·55946 English Inches, or 5780 Mètre. It is divided into  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$  Elle. The Ruthe of 16 Fuss = 5·0182189 English Yards, or 4·584 Mètres. The Leipsic Ruthe of 16 Leipsic Fuss (see Saxony) is also used.

## MEASURES OF SURFACE.

The Scheffel of 120 Square Ruthen, or 80720 Square Fuss, = 3015·8776 English Square Yards, or 6231½ Acre, or 25·2156672 Ares.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Scheffel of 4 Viertel, each of 4 Maass = 2·92068286 British Imperial Bushels, or 106·16 Litres. The Viertel =

\* The Ohm is therefore 109 Maass.

5 841:657 British Imperial Gallons, or 26·54 Litres. The Mass = 1·46084143 British Imperial Gallons, or 6·135 Litres.

#### MEASURES OF CAPACITY FOR LIQUIDS.

The Eimer of 72 Kannen = 14·6025339 British Imperial Gallons, or 66·346 Litres. The Kanne = 1·6225037 British Imperial Pint, or ·9214 Litres. The Fass (Beer) of 6 Eimer = 37·6152034 British Imperial Gallons, or 398·076 Litres.

#### WEIGHTS.

The weights are the same as those of Prussia (see Prussia).

### SCHAUMBURG-LIPPE (or LIPPE BUCKEBURG.)

#### MEASURES OF LENGTH.

The Fuss of 12 Zoll, each of 12 Linien, = 11·421466 English Inches, or ·2901 Mètre. The Elle of 2 Fuss = 22·842932 English Inches, or ·5802 Mètre. The Lachter of 7 Fuss = 2·2203408 English Yards, or 2·0307 Mètres. The Ruthe of 16 Fuss = 5·0762076 English Yards, or 4·6416 Mètres. The Faden is 2 Ellen. Yarn is measured by the Stück of 20 Bind, each of 66 Faden. The Great Stück is double the Stück, and contains 5280 Ellen, the Stück contains 2640 Ellen.

#### MEASURES OF SURFACE.

The Morgen of 120 Square Ruthen = 3092·0980744 English Square Yards or ·336797 Acre, or 25·8533406 Ares. The Square Ruthe = 25·7674839 English Square Yards, or 21·54445 Square Metres.

#### CUBIC MEASURE.

The Kla'ter of 216 Cubic Fuss = 195·67119 English Cubic Feet, or 5·27347 Cubic Mètres.

#### MEASURES OF CAPACITY FOR DRY GOODS.

The Fuder of 12 Malter, each of 6 Himten, each of 4 Metzen = 3·1634874 British Imperial Quarters, or 23·737896 Hectolitres. The Malter = 5·4423249 British Imperial Bushels, or 1·978158 Hectolitres. The Himten = 7·256433 British Imperial Gallons, or 32·9693 Litres. The Metzen = 1·314103 British Imperial Gallon, or 3·2123 Litres.

## MEASURES OF CAPACITY FOR LIQUIDS.

The Oxhoft (Wine) of 6 Anker, each of 28 Maass, each of 4 Ort = 45·136897 British Imperial Gallons, or 2·050776 Hectolitres. The Anker = 7·522816 British Imperial Gallons, or 34·1796 Litres. The Maass = 1·074688 British Imperial Quart, or 1·2207 Litre. The Ort = ·53784 British Imperial Pint, or ·305175 Litre. The Dreiling (Brandy) of 108 Maass = 29·016576 Gallons, or 131·8356 Litres. The Dreiling\* (Beer) = 168 Maass = 45·186897 British Imperial Gallons, or 2·050776 Hectolitres.

## WEIGHTS.

The Weights are the same as those of Prussia (see Prussia), but the Centner is 108 Pfund.

## LIPPE.

## MEASURES OF LENGTH.

The Fuss of 12 Zoll, each of 12 Linnen = 11·39885 English Inches, or ·289513 Mètre. The Elle of 2 Fuss = 22·7967 English Inches, or ·579026 Metre. The Ruthe of 16 Fuss = 5·065985 English Yards, or 4·632208 Mètres.

## MEASURES OF SURFACE.

The Morgen of 120 Square Ruthen = 3079·60113 English Square Yards, or ·686281 English Acre., or 25·7488 Ares. The Scheffel of 80 Square Ruthen = 2053·0674248 English Square Yards, or ·424187 Acre, or 17·1658 Ares.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Rye-Scheffel of 6 large, or 8 small Metzen, or 24 Meal-Metzen. The Oats-Scheffel of 7 large Rye-Metzen = 1·21855698 British Imperial Bushel, or 44·2917 Litres. 7 Rye-Scheffel = 6 Oats-Scheffel.

## MEASURES OF CAPACITY FOR LIQUIDS.

The Kanno of 4 Ort = 1·2116057 British Imperial Quarts, or 1·37622 Litre. The Ort = ·6058028 British Imperial Pint, or ·34405 Litre. The Oxhoft of 1½ Ohm or, 6 Anker, or 162 Kannen = 49·07003 British Imperial Gallons, or 2·2294764

\* The Beer Dreiling contains the same quantity as the Wine Oxhoft.

Hectolitres. The Anker is 27 Kannen, and = 8·17838 British Imperial Gallons, or 37·15794 Litres. The Ohm is 4 Anker, and = 32·71382 British Imperial Gallons, or 1·4868176 Hectolitres. The Beer Ohm = 100 Kannen = 121·16057 British Imperial Quarts, or 137·622 Litres.

## WEIGHTS.

The weights for the Zollverein Customs' Duties are the same as the weights of Prussia (see Prussia); but the Pfund of 82 Loth, each of 4 Quentchen, is also used; it is equal to 1·0804801 lb. av. English, or 467·41 Grammes. The Centner of 108 Pfund = 111·2918508 lbs. av. English, or 50·48028 Kilogrammes.

## GERMANY. (South.)

## BADEN.

## MEASURES OF LENGTH.

<i>South German value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metres.
10 Punkte	= 1 Linie	= ·118	= ·003
10 Linien	= 1 Zoll	= 1·181	= ·03
10 Zoll	= 1 Fuss	= 11·811	= ·8
		Feet.	
2 Fuss	= 1 Elle	= 1·96858	= ·6
10 Fuss	= 1 Ruthe	= 9·84269	= 3

The Elle is divided into  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{5}$  Elle. The Klafter of 6 Fuss = 5·905618 English Feet, or 1·8 Mètre. For Itinerary measures the Stunde of 14814·8148 Fuss = 4860·5911 Yards English, or 4444·4 Mètres, and the Meile of 2 Stunden = 5·5284 Miles English.

## MEASURES OF SURFACE.

<i>South German value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Sq. Yards.	Sq. Metres.
100 Sq. Zoll	= 1 Sq. Fuss	= 1076429824	= ·09
100 Sq. Fuss	= 1 Sq. Ruthe	= 1076429824	= 9
100 Sq. Ruthen	= 1 Viertel	= 1076429824	= 900
4 Viertel	= 1 Morgen	= 4305·719296	= 3600

For Land Measure the Square Ruthe is also divided into 10 Feldschuhe, each of 10 Theile (Feld Zoll).

**CUBIC MEASURES.**

The Klafter of (6 × 6 × 4 Fuss) 144 Cubic Fuss = 137·81507 English Cubic Feet, or 3·888 Cubic Mètres. The Cubic Fuss = ·9585768 English Cubic Fuss, or ·009 Cubic Mètre.

**MEASURES OF CAPACITY FOR LIQUIDS.**

<i>South German value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Glass =	1·05682 Gill. =	·15 Litres.
10 Glass =	1 Maass =	1·8204 Quart. =	1·5
10 Maass =	1 Stutze =	3·8014 Gallons. =	15
10 Stutzen =	1 Ohm =	33·014 =	150
10 Ohm =	1 Fuder =	330·140 =	1500

The Maass is also divided into 2 Half-Maass, each of 2 Quarter Maass or Schoppen, each of 2 Half-Schoppen.

**MEASURES OF CAPACITY FOR DRY GOODS.**

<i>South German value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Mässlein =	·0418 Bushels. =	1·5 Litres.
10 Becher =	1 Mässlein =	·0418 =	1·5
10 Mässlein =	1 Sester =	·4127 =	15
10 Sester =	1 Malter =	4·1268 =	150
10 Malter =	1 Zuber =	41·2679 =	1500

**WEIGHTS.**

<i>South German value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Pfennig =	7·7168 Grains Troy. =	·5 Grammes.
10 As =	1 Pfennig =	7·7168 =	·5
10 Pfennig =	1 Centas =	·011028 lb. Av. =	5
10 Centas =	1 Zehning =	·11028 =	50
10 Zehning =	1 Pfund =	1·1028 =	500
100 Pfund =	1 Centner =	110·280 =	50000 or 50 Kilogrammes.

**BAVARIA.**

**MEASURES OF LENGTH.**

<i>Bavarian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Zoll =	·95756 Incho. =	·02482 Metres.
12 Linien =	1 Zoll =	·95756 =	·02482
12 Zoll =	1 Fuss =	·95756 Feet. =	·29186
6 Fuss =	1 Klafter =	5·74586 =	1·75116
10 Fuss =	1 Ruthe =	9·5756 =	2·9186

Surveyors divide the Fuss into 10 Zoll, each 10 Linien. The Elle contains 2 Fuss 10½ Zoll, and equals ·91101 English Yard, or 2·73308 English Feet, or ·833 Mètre.

## MEASURES OF SURFACE.

<i>Bavarian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Sq. Yards.	Sq. Metres.
144 Sq. Zoll	= 1 Sq. Fuss	= ·10187970	= ·0851818
100 Sq. Fuss	= 1 Sq. Ruthe	= 10·187970	= 8·51818
400 Sq. Ruthen	= { 1 Tagwerk, Morgen, or Juchert }	= { 4075·18810 Acre. or ·842 }	= 3407·272

## CUBIC MEASURES.

The Cubic Fuss of 1728 Cubic Zoll = ·878 English Cubic Foot, or ·02486 Cubic Mètre. The Klafter of (6 × 6 × 3½ Fuss) 126 Cubic Fuss = 110·628 English Cubic Feet, or 3·1325 Cubic Mètres.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Bavarian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Bushels.	Litres.
4 Dreisigers	= 1 Maassal	= ·12745	= 4·68245
4 Maassals	= 1 Viertel	= ·5098	= 18·5298
2 Viertel	= 1 Metze	= 1·0196	= 37·0596
6 Metzen	= 1 Schäffel	= 6·1176	= 222·3576
4 Schäffel	= 1 Muth	= 3·0588	= 889·4304

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Bavarian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Gallons.	Litres.
	1 Maaskanne	= ·23529	= 1·06903
60 Maaskannen	= 1 Eimer	= 15·05856	= 68·4179
25 Eimer	= 1 Fass	= 376·464	= 1710·448

The Schenk-Eimer, the ordinary Eimer used in the Wine trade, contains only 60 Maaskannen, and equals 14·1174 British Imperial Gallons, or 64·1418 Litres.

## WEIGHTS.

<i>Bavarian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Drams Av.	Grammes.
4 Quentchen	= 1 Loth	= 9·87656	= 17·5
82 Loth	= 1 Pfund	= 1·23457	= 560
100 Pfund	= 1 Centner	= 123·457	= 56000 or 56 Kilogrammes.



The Apothecaries' Pfund, or Pfund of Nuremberg, is divided into 24 Loth, each of 12 Unzen. 14 Apothecaries' Pfund = 9 Commercial Pfund. The Apothecaries' Pfund = .793652 lbs. av., or 360 Grammes.

The Mark for weighing the precious metals = 3608.9506 English Troy Grains, or 233.855 Grammes, and is divided as in Prussia, for Gold into 24 Carats, each of 12 Grains, and for Silver into 16 Loth, each of 18 Grains.

In Rhenish Bavaria the Fuss =  $\frac{1}{2}$  Mètre, or 13.128596 English Inches, and the Elle =  $1\frac{1}{2}$  Mètre, or 47.244943 English Inches. The Cubic Klafter is  $6 \times 6 \times 6 = 144$  Cubic Fuss. *Dry goods* are measured by the Hectolitre, (see France) divided into 4 Viernfel, each of 2 Simmer, each of 4 Vierling.

## WURTEMBERG.

### MEASURES OF LENGTH.

<i>Wurtemberg value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Punkte	Line. = .11126	Metros. = .000286
10 Punkte	= 1 Linie	Inches. = .1126	= .002864
10 Linien	= 1 Zoll	= 1.126	= .028649
		Feet.	
10 Zoll	= 1 Fuss	= .93995	= .28649
10 Fuss	= 1 Ruthe	= 9.3995	= 2.8649

The Klafter of 6 Fuss = 5.6397 English Feet, or 1.71894 Mètre. The Elle of 2.144 Fuss = 2.01525 English Feet, or .614234 Metre. The Meile of 26000 Fuss = 8146.23316 English Yards, or 4.6285 English Miles, or 7.44875 Kilometres.

### MEASURES OF SURFACE.

<i>Wurtemberg value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
100 Square Zoll	} = 1 Sq. Fuss =	Sq. Feet. 883506	Sq. Metre. .0820765
100 Square Fuss		} = { 1 Sqr. Ruthe } =	88.3506002
884 Square Ruthen	} = 1 Morgen =		Sq. Yards. 3769.625608
		Acre. or .77984	

The Morgen is also divided into 4 Viertels.

## CUBIC MEASURES.

<i>Wurtemberg value.</i>	<i>Systematic name.</i>	<i>English name.</i> Cubic Feet.	<i>Metric value.</i> Cubic Metres.
1000 Cubic Linien	} = 1 Cubic Zoll	= .00083045	= .000023514
1000 Cubic Zoll			
144 Cubic Fuss	} = 1 Cubic Klaffer	= 866.985	= 3.386
Fuss			

The Klaffer is used for measuring Firewood, it is 6 Fuss by 6 Fuss by 4 Fuss.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Wurtemberg value.</i>	<i>Systematic name.</i>	<i>English value.</i> Quarts. Gallons. Bushels.	<i>Metric value.</i> Litres.
4 Viertlein	= 1 Ecklein	= 1.21896	= .692289
8 Ecklein	= 1 Vierling	= 1.21896	= 5.5383125
4 Vierling	= 1 Simri	= 1.21896	= 22.15325
8 Simri	= 1 Scheffel	= 4.87584	= 177.226

There is also the *Müsslein* of 2 Ecklein = 2.43792 English Quarts, and the *Achtel* of 2 Müsslein, equal to half a Vierling, or to .60948 of a British Imperial Gallon.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Wurtemberg value.</i>	<i>Systematic name.</i>	<i>English value.</i> Gills. Quarts. Gallons.	<i>Metric value.</i> Litres.
	1 Quart or Schoppen	= 3.23464	= .45926
4 Quarts or Schoppen	= { 1 Helleich Maass }	= 1.61732	= 1.83704
10 Helleich Maass	} = 1 Imi	= 4.0433	= 18.3704
16 Imi			
6 Eimer	= 1 Fuder	= 388.1568	= 1783.5584

## WEIGHTS.

<i>Wurtemberg value.</i>	<i>Systematic name.</i>	<i>English value.</i> Oz. Av. lbs. av.	<i>Metric value.</i> Grammes.
4 Quentchen	= 1 Loth	= .515575	= 14.5853
32 Loth	= 1 Pfund	= 1.03115	= 466.73
100 Heavy, or 104 Light Pfund	} = 1 Centner	= 107.2396	= 4853.992
100 Light Pfund			

The Zollfund ( $\frac{1}{4}$  Kilogramme) with its decimal subdivisions (see Prussia) is also used.

**HESSE-DARMSTADT.**

**MEASURES OF LENGTH.**

<i>Darmstadt value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metre.
	1 Linie	= .098426	= .0025
10 Linien	= 1 Zoll	= .984269	= .025
10 Zoll	= 1 Fuss	= 9.842697	= .25
		Fect.	
10 Fuss	= 1 Klafter	= 8.2022	= 2.5

The Elle of 24 Zoll = 1.9685395 English Foot, or .6 Mètre.

**MEASURES OF SURFACE.**

<i>Darmstadt value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Sq. Feet.	Sq. Metres.
100 Sq. Zoll	= 1 Sq. Fuss	= 6727608	= .0625
100 Sq. Fuss	= 1 Sq. Klafter	= 67.27608	= 6.25
100 Square Klafter	} = { 1 Viertel Morgen }	= 6727.60848	= 625
4 Viertel Morgen	} = { 1 Morgen }	= { 26910.48393 Acres. or .61788 }	= { 2500 or Ares. 25 }

**CUBIC MEASURES.**

<i>Darmstadt value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Cubic Feet.	Cubic Metres.
1000 Cubic Zoll	= 1 Cubic Fuss	= .5518119	= .015625
1000 Cubic Fuss	= 1 Cubic Klafter	= 551.811903	= 15.625

The Stecken of 100 Cubic Fuss = 55.18119 English Cubic Feet, or 1.5625 Metre. It is used for measuring Firewood, and is 5 Fuss by 5 Fuss by 4 Fuss.

**MEASURES OF CAPACITY FOR DRY GOODS.**

<i>Darmstadt value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value</i>
		Bushels.	Litres
4 Maaschen	= 1 Gescheid	= .055	= 2
4 Gescheid	= 1 Kumpf	= .2201	= 8
4 Kumpf	= 1 Simmer	= .8804	= 32
4 Simmer	= 1 Malter	= 3.5216	= 128

The Maaschen is equal to  $\frac{1}{2}$  Litre, or  $\cdot 44$  British Imperial Gallon.

### MEASURES OF CAPACITY FOR LIQUIDS.

<i>Darmstadt value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Gallons.	Litres.
4 Quarts or Schoppen = 1 Maass	=	$\cdot 44019$	= 2
4 Maass	= 1 Viertel	= $1\cdot 76076$	= 8
20 Viertel	= 1 Ohm	= $35\cdot 2152$	= 160
6 Ohm	= 1 Fuder	= $211\cdot 2912$	= 960

The Quart or Schoppen is equal to  $\frac{1}{2}$  Litre, or  $\cdot 44$  British Imperial Gallon.

### WEIGHTS.

<i>Darmstadt value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Oz. Av.	Grammes.
4 Pfennig = 1 Quentchen	=	$\cdot 13779$	= $3\cdot 90625$
4 Quentchen = 1 Loth	=	$\cdot 55116$	= 15 $\cdot$ 625
32 Loth = 1 Pfund	=	$1\cdot 1023$	= 500
100 Pfund = 1 Centner	=	$110\cdot 233$	= 50000 or 50 Kilogrammes.

## MECKLENBURG-SCHWERIN: MECKLENBURG STRELITZ.

### MEASURES OF LENGTH.

<i>Mecklenburg value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metres.
10 Punkte = 1 Linie	=	$\cdot 11456$	= $\cdot 00291$
10 Linien = 1 Zoll	=	$1\cdot 14568$	= $\cdot 0291$
10 Zoll = 1 Fuss	=	$11\cdot 45689$	= $\cdot 291$
16 Fuss = 1 Ruthe	=	$5\cdot 09182$	= 4 $\cdot$ 656

The Linear measures given in the table are those of Mecklenburg, and are used in Land Surveying. The Rostock Fuss =  $11\cdot 326936$  English Inches, or  $\cdot 287699$  Metre. The Fuss used by Builders is the same as that of Hamburg. The Rostock Elle of 2 Rostock Fuss =  $22\cdot 653872$  English Inches, or  $\cdot 575398$  Metre. The Mecklenburg Meile is the same as that of Prussia.

## MEASURES OF SURFACE.

The Hufe is a variable measure, signifying as much land as 300 Rostock Scheffeln of Grain will sow. The Morgen is also a variable measure. In some places it is 400, in others 800, in others 200, and in others 100 Square Ruthen. A Square Ruthe = 25·9266527 English Square Yards, or 84·7578 Square Metres.

## CUBIC MEASURES.

The (Builders') Cubic Fuss is the same as the Hamburg Cubic Fuss, and = ·83115 English Cubic Foot, or ·023384 Cubic Metre. The Faden of 1·47 (Builders') Cubic Fuss = 122·17905 English Cubic Feet, or 3·459498 Cubic Metres.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Schwerin value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Quarter.	Litres.
4 Spint or Metzen =	{ 1 Fass or } Viertel }	·088485 =	9·72225
4 Viertel or Fass =	1 Scheffel	= ·18374 =	38·889
12 Scheffel	= 1 Drömt	= 1·60488 =	466·668
8 Drömt	= 1 Last	= 12·88904 =	3733·344

Salt and Coal are measured with a smaller Last of 12 Tonne, each of 6 Scheffeln.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Schwerin value:</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Pints.	Litres.
	1 Poll, or } Quartier }	= 1·594706 =	·905685
2 Poll, or Quartier	= 1 Kanne	= 3·18941 =	1·81137
2 Kannen	= 1 Stubchen	= 6·37882 =	3·62274
2 Stubchen	= 1 Viertel	Imperial Gallons. = 1·59470 =	7·24548
4 Viertel	= 1 Eimer	= 6·37880 =	28·98192
1½ Eimer, or 5 Viertel	= 1 Anker	= 7·97850 =	36·22740
4 Anker, or 24 Viertel	= 1 Ohm	= 31·89400 =	144·90960
1½ Ohm, or 6 Anker	= 1 Oxhott	= 47·84100 =	217·76440
4 Oxhott, or 6 Ohm	= 1 Euler	= 191·86400 =	871·05760

## WEIGHTS.

<i>Schwerin value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
4 Quentchen = 1 Loth	=	Oz. Av. ·56022 =	Grammes. 15·88215
32 Loth = 1 Pfund		lbs. Av. 1·12044 =	508·229
112 Pfund = Centner	=	125·48928 =	{ 56921·648 or Kilogrammes. 56·921648

The Schiffspfund of 20 Liespfund, each of 14 Pfund = 313·7232 lbs. av. English, or 142·30412 Kilogrammes. There is also the Schiffspfund of 20 Liespfund, each of 16 Pfund. It is equal to 358·5408 lbs. av. English, or 197·76137 Kilogrammes. In Rostock there are two Pfunds of different weights in use, namely, the *Stadt-gewicht* (public scales weight) Pfund, and the *Kramer-gewicht* (retail weight) Pfund. The former is that given in the table. The Kramer-gewicht Pfund = 1·06708 lb. av. English or 484·028 French Grammes.

## HAMBURG.

## MEASURES OF LENGTH.

<i>Hamburg value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
8 Achtel = 1 Zoll		Inches. = ·94021	Mètres. = ·02388
12 Zoll = 1 Fuss		= 11·28252	= ·28657
2 Fuss = 1 Elle		Feet. = 1·88042	= ·57314
6 Fuss = 1 Klafter or Faden		= 5·64126	= 1·71942

The Elle given in the table is the Hamburg Elle, used for Silk, Linen, and Cotton goods. The Brabant Elle used for Cloths and Stuffs is equal to 1½ Hamburg Elle, and therefore to 2·2565 English Feet, or ·687768 Mètre. In practice, 4 Brabant Ellen are reckoned equal to 3 English Yards. There are 3 sorts of Ruthe used in Hamburg, namely the Marsch-Ruthe of 14 Hamburg Fuss, and equal to 13·16294 English Feet, or 4·01198 Mètres; the Geest-Ruthe of 16 Hamburg Fuss, and equal to 15·04336 English Feet, or 4·58512 Mètres; and the Rheinland-Ruthe of 12 Rheinland Fuss, and equal to 12·35592 English Feet, or 3·7662 Mètres. The Rheinland or Prussian Fuss, used by Surveyors and Engineers, is divided into 12 Zoll, each of 10 Linien, each of 10 Theile, and is equal to 1·02976 English Foot, or ·31385 Metre.

## MEASURES OF SURFACE.

<i>Hamburg value.</i>	<i>Systematic name.</i>	<i>English value.</i> Sq. Feet.	<i>Metric value.</i> Sq. Metres.
144 Sq. Zoll =	1 Sq. Fuss =	88400 =	882723
196 Sqr. Fuss } =	{ 1 Square Marsch- Ruthe } =	173·264 =	16·096108
256 Sqr. Fuss } =	{ 1 Square Geest- Ruthe } =	226·304 =	21·023488
200 Sqr. Geest- Ruthen } =	{ 1 Scheffel Geest- land } =	{ 5 028·977 or Acres. 1·039 } =	{ 4204·697 Acres. 42·046 } =
600 Sqr. Marsch- Ruthen } =	1 Morgen =	{ 11550·988 or Acres. 2·886 } =	{ 9857·664 or Acres. 96·576 }

A space called *Travelboden* is 5600 Hamburg Square Fuss, and is equal to 550·4 English Square Yards, or 459·8888 Square Metres.

## CUBIC MEASURES.

<i>Hamburg value.</i>	<i>Systematic name.</i>	<i>English value.</i> Cubic Feet.	<i>Metric value.</i> Cubic Metres.
1728 Cubic Zoll =	1 Cubic Fuss =	82115 =	2·3534
88½ Cubic Fuss =	1 Cubic Klafter =	73·88 =	2·091911
120 Cubic Fuss =	1 Tehr =	99·788 =	2·82408

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Hamburg value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Gallons.	<i>Metric value.</i> Litres.
2 Ossel =	1 Quartier =	1998875 =	905685
2 Quartier =	1 Kanne =	398675 =	1·81137
2 Kannen =	1 Stubchen =	79735 =	3·62274
2 Stubchen =	1 Viertel =	159470 =	7·24548
4 Viertel =	1 Eimer =	318940 =	14·49096
5 Viertel, or 1½ Eimer } =	1 Anker =	797350 =	36·2274
6 Eimer, or 24 Viertel } =	1 Tonne =	3827280 =	17389152
4 Anker, or 5 Eimer } =	1 Ohm =	3189400 =	1449096
6 Anker, or 1½ Ohm } =	1 Oxhoft =	4784100 =	2173644
6 Ohm =	{ 1 Fuder, or Tonneau }	19136400 =	8694576

The above are the measures for Wines and Spirits. For Beer there are the Tonne of 48 Stubchen, the Kleine-Tonne of 40 Stubchen, and the Schmal-Tonne of 82 Stubchen. The Tonne of Vinegar is 80 Stubchen. The Tonne of Oil is 32 Stubchen.

## MEASURES OF CAPACITY FOR DRY GOODS.

Hamburg value.	Systematic name.	English value.	Metric value.
		Imperial Bushels.	Litres.
2 Small Maass = 1 Large Maass =		·04725 =	1·71752
4 Large Maass = 1 Spint =		·18901 =	6·870187
4 Spint = 1 Himten =		·75604 =	27·48075
2 Himten = 1 Fass =		1·51208 =	54·9615
2 Fass = 1 Scheffel =		3·02416 =	109·928
10 Scheffeln = 1 Wispel =		30·2416 =	1099·28
3 Wispel = 1 Last =		90·7248 =	$\left\{ \begin{array}{l} 3297·69 \text{ or} \\ \text{Hectolitres} \\ 32·9769 \end{array} \right.$

Of Wheat, Rye, or Peas, the Scheffel contains 2 Fass; but of Barley or Oats it contains 3 Fass. 100 Fass = 18·9010 British Imperial Quarters, or 54·9615 Hectolitres. The Tonne of Salt = 4·5337 British Imperial Bushels, or 164·794 Litres. The Tonne of Lime is 6 Himten or 3 Fass, and is equal to 4·53624 British Imperial Bushels, or 164·8845 Litres.

## WEIGHTS.

Hamburg value.	Systematic name.	English value.	Metric value.
		lb. av.	Grammes.
10 Half Grammen = 1 Quint =		·0110282 =	5
10 Quinten =	$\left\{ \begin{array}{l} 1 \text{ (New)} \\ \text{Unze} \end{array} \right\}$ =	·110282 =	50
10 (New) Unzen =	$\left\{ \begin{array}{l} 1 \text{ (New)} \\ \text{Metric} \\ \text{Pfund} \end{array} \right\}$ =	1·10282* =	500
100 Pfund = 1 Centner =		110·282 =	$\left\{ \begin{array}{l} 50000 \text{ or} \\ \text{Kilogrammes} \\ 50 \end{array} \right.$
600 (New) Pfund =	$\left\{ \begin{array}{l} 1 \text{ Last} \\ \text{(Com-} \\ \text{mercial)} \end{array} \right\}$ =	6619·92 =	3000

This (New Metric) weight is employed in the trade of gold and silver bullion, but special weights called *bank weights*, and *gold and silver money weights* are employed for weighing silver in the Hamburg Bank, and for weighing gold and silver money. There are also *Apothecaries' weights* used in mixing medicines.

\* Or, ·62654 of a Troy lb.



## (a) GOLD MONEY WEIGHTS.

<i>Hamburg value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes.
12 Grains =	1 Carat =	1.2511	= 9.744
24 Carats, or 288 Grains	} = { 1 Hamburg Cologne Mark }	= 30.0264	= 233.855

## (b) SILVER MONEY WEIGHTS.

18 Grains =	1 Unze =	1.87665	= 14.61898
16 Unzen or Loth, or 288 Grains	} = { 1 Hamburg Cologne Mark }	= 30.0264	= 233.855

The Hamburg Cologne Mark is equal to .62655 of the English lb. Troy.

## (c) APOTHECARIES' WEIGHT.

20 Grains =	1 Scruple =	2.893815	= 1.25
8 Scruples =	1 Dram =	57.866800875	= 3.75
8 Drams =	1 Unze =	462.98047	= 30

The Apothecaries' Unze is equal to 6 Quints ( $\frac{1}{4}$ ) of the Hamburg (New Metric) Unze, or to .96 &c. of the English Ounce Avoirdupois.

For weighing Precious Stones the *Loth* or *Unze* (see Silver Money Weights) is divided into 71 Karats of 4 Grains each.

Corn, Pulse, and Seeds are sold, wholesale, by *weight*, not measure, viz. :—

Wheat .. .. .	per Last of 5400 lbs. gross-weight.
Rye .. .. .	5100 " "
Buck-Wheat and Barley ..	4800 " "
Anhalt and Magdeburg Barley according to measure.	
Small Danish Barley ..	per Last of 4820 lbs. gross-weight.
Oats .. .. .	3600 " "
Malt .. .. .	3000 " net.
Peas and Vetches .. ..	5600 " gross-weight.
Beans .. .. .	5520 " "
Rapeseed and Turnip-seed ..	4800 " "
Linseed .. .. .	per 180 lbs.
Other Seeds .. .. .	at 100 lbs. net.

Wheat-Flour for exportation per Barrel of 177 lbs. net, ditto English, per Sack of 280 lbs. (including the Sack).

## BREMEN.

## MEASURES OF LENGTH.

<i>Bremen value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value</i>
		Inches.	Metres.
	1 Linie =	·09493 =	·002009
10 Linien	= 1 Zoll =	·94933 =	·02411
12 Zoll	= 1 Fuss =	11·39196 =	·28935
2 Fuss	= 1 Elle =	22·78392 =	·57870
3 Ellen	= 1 Klafter =	5·69598 =	1·7361
8 Ellen	= 1 Ruthe =	15·18928 =	4·6296

Surveyors and Engineers divide the Fuss into 10 Zoll.

100 Bremen Ellen are equal to 63·2888 English Yards, and 100 English Yards are equal to 158·006 Bremen Ellen. The Bremen Brabant Elle is  $1\frac{1}{2}$  Bremen Ellen, and is equal to ·759463 English Yard, or ·66444 Mètre.

## MEASURES OF SURFACE.

<i>Bremen value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Sq. Yds.	Square Metres.
144 Sq. Zoll*	= 1 Sq. Fuss =	·10083 =	·084
256 Sq. Fuss	= 1 Sq. Ruthe =	25·6853 =	21·504
120 Sq. Ruthen =	1 Morgen =	$\left. \begin{array}{l} 3082\cdot2896 \\ \text{Acres.} \\ \text{or } 63682 \end{array} \right\} =$	$\left. \begin{array}{l} 2580\cdot48 \\ \text{Ares.} \\ 25\cdot8048 \end{array} \right\}$ or

## CUBIC MEASURES.

<i>Bremen value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Cubic Feet.	Cubic Metres.
1728 Cubic Zoll†	= 1 Cubic Fuss =	·857 =	·024
72 Cubic Fuss	= 1 Faden =	61·704 =	1·728

The Faden is 6 Fuss × 6 Fuss × 2 Fuss.

\* Or 100 Square Decimal Zoll.

† Or 1000 Cubic Decimal Zoll.

MEASURES OF CAPACITY FOR LIQUIDS.

<i>Bremen value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
4 Mingeln	= 1 Quartier	Imperial Pints. 1·4180725	Litres. = 787
4 Quartier	= 1 Stübchen	5·67229	= 3·149
9 Quartier, or 2½ Stübchen)	= 1 Viertel	Imperial Gallons. 1·560	= 7·086
5 Viertel	= 1 Anker	7·800	= 35·430
4 Anker	= 1 Ohm	31·200	= 141·720
6 Anker	= 1 Oxhoft	46·800	= 212·580
6 Ohm	= 1 Fuder	280·800	= 1275·480

The principal Measures for Wines and Spirits are the Viertel, the Anker, and the Oxhoft.

MEASURES OF CAPACITY FOR DRY GOODS.

<i>Bremen value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
4 Spinta	= 1 Viertel	Imperial Bushels. ·50	Litres. = 18·526
4 Viertel	= 1 Scheffel	2·0388	= 74·104
40 Scheffeln	= 1 Last	Imperial Quarters. 81·552 or 10·194	= 2964·160

WEIGHTS.

The Weights are the same as those of Hamburg (see Hamburg).

LUBEC.

MEASURES OF LENGTH.

<i>Lubec value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Punkte	Inches. ·00655	Metros. = ·0001666
12 Punkte	= 1 Linie	·07868	= ·0019973
12 Linien	= 1 Zoll	·94865	= ·0239683
12 Zoll	= 1 Fuss	11·3238	= 28762
2 Fuss	= 1 Elle	Feet. 1·88730	= ·57524
8 Ellen	= 1 Ruthe	15·0984	= 4·60192

The Lubec Geographical Mile of 15 to an Equatorial Degree, is equal to 4·6807 English Miles.

## MEASURES OF SURFACE.

<i>Lubec value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Square Feet.	Square Metres.
144 Square Zoll = 1 Square Fuss =		8904758 =	0827252
256 Square Fuss = 1 Square Ruthe =		Square Yards.	
		2532907 =	21177667

The Scheffel is as much land as a Scheffel of Grain will sow, and is therefore an area which varies with different Grains, and with different qualities of the same Grain. From 60 to 70 Scheffeln are reckoned to the Square Ruthe, and 24 Scheffeln to the Tonne, and 4 Tonne to the Last.

The Scheffel of 60 Square Ruthen = 1569.7446 English Square Yards, or 1270.66006 Square Mètres.

## MEASURES OF CUBIC CAPACITY.

The Faden = 74.912 Cubic Feet English. For the measurement of Firewood there are the *Stadtfaden* and the *Forstfaden*. The *Stadtfaden* = 6 Fuss 7½ Zoll high, 6 Fuss 7½ Zoll broad. 10 *Forstfaden* are reckoned equal to 11 *Stadtfaden*.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Lubec Value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Gill.	Litres.
	1 Ort =	1.6012 =	22734375
		Imperial Pint.	
2 Ort = 1 Plank =		8006 =	4546875
		Imperial Gallons.	
2 Plank = *1 Quartier =		20015 =	909375
2 Quartier = 1 Kanne =		40080 =	181875
2 Kannen = 1 Stübchen =		80060 =	36375
2 Stübchen = 1 Viertel =		16012 =	7275
4 Viertel = 1 Eimer =		64048 =	29100
5 Viertel = 1 Anker =		80060 =	36375
4 Anker = 1 Ohm =		320240 =	145500
6 Anker, or 30 Viertel, or 1½ Ohm	} = 1 Oxhoft =	480360 =	218250
4 Oxhoft, or 6 Ohm			

The Fass for Brandy (in the wholesale trade) = 1 Oxhoft. The Fass or Ohm for Beer (in the wholesale trade) is 80 Kannen, each of 2 Quartier or Kross, and is equal to 32.79793

\* The Quartier is also called a *Bouteille* in Wine measurement.

British Imperial Gallons, or 149·016 Litres. The Beer Kanne  
= 40997 British Imperial Gallons, or 1·8627 Litre.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Lubec value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>Busbels.</small>	<small>Litres.</small>
4 Fass	= 1 Scheffel	= 95448	= 34·694
4 Scheffel	= 1 Tonne	= 3·81792	= 138·776
8 Tonne	= 1 Drömt	= 1·43172	= 416·828
8 Drömt	= 1 Last	= 11·45376	= 3880·624

The Scheffel and its multiples above given are used for measuring Wheat, Rye, Barley, and Peas. The Scheffel for Oats and Fruit is larger, and = 18589 British Imperial Quarters, or 38·514 Litres. Its multiples, the Tonne, Drömt, and Last, are in proportion.

## WEIGHTS.\*

<i>Lubec value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>Oz. Av.</small>	<small>Grammes.</small>
	1 Pfenning	= 03851	= 958607
4 Pfenning	= 1 Quentche	= 18406	= 3·814429
4 Quentchen	= 1 Loth	= 53625	= 15·257718
2 Loth	= 1 Unze	= 1·0725	= 30·415437
8 Unzen	= 1 Mark	= 53625	= 243·8235
2 Marks, or 32 Loths	} = 1 Pfund	= 1·0725	= 486·647
14 Pfund	= 1 Liespfund	= 15·015	= <small>Kilogrammes.</small> 6·813058
8 Liespfund, or 112 Pfund	} = 1 Centner	= <small>Owt.</small> 1·0725	= 54·504464
21½ Centner	= 1 Schiffspfund	= 23·05875	= 1171·845976

The Freight Schiffspfund contains 820 Pfund, or 20 Liespfund of 16 Pfund.

## SPAIN.

## MEASURES AND WEIGHTS.

The Measures and Weights are exactly the same as those of France. The Metro is the Mètre; the Litro is the Litre; the Gramo is the Gramme; and the Area is the Are, and the

\* Doubtless Lubec will soon adopt the New Metric Weights which have been introduced at Hamburg and Bremen.

Tonelada is 10 Metric Quintal of 100 Kilogrammes each. The Metric system came into use on the 1st January, 1859 (see France). It is also the legal system for all the Spanish Colonies, but the Old Spanish system of Weights and Measures is still occasionally referred to, it is therefore given below.

### OLD MEASURES OF LENGTH.

<i>Old Spanish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metres.
12 Puntos	= 1 Linea	= .07725	= .001962
12 Lineas	= 1 Pulgada	= .927	= .023558
6 Pulgadas	= 1 Sesma	= 5.564	= .141818
2 Sesmas, or 12 Pulgadas	} = { 1 Pies de Burgos }	= 11.128	= .28264
8 Pies de Burgos	} = 1 Vara	= 2.782	= .64792
2 Varas	= 1 Estado	= 5.564	= 1.69584
4 Varas	= 1 Estadal	= 11.128	= 3.39168
5000 Varas	= { 1 Legua (Castilian) }	= { 2.68446 or Yards. 4686½ }	= { 4239 Kilometres. 4.2396 }
8000 Varas	= { 1 Legua (Spanish) }	= { 4.2151 or Yards. 7418½ }	= { 6788.86 or Kilometres. 6.78856 }

The Vara was also subdivided into 4 Palmos of 9 Pulgadas, or 12 Dedos, and each Dedo of 9 Lineas. 3 Pulgadas = 4 Dedos.

The Passo = 5 Varas; the Guerda = 8½ Varas = 88 Palmos. 100 English Yards = 107.84 Varas, and 100 Varas = 92.78 English Yards. The Codo for measuring timber and masts was two-thirds of the Vara.

The Geographical Legua = 7608.84 Varas; the Legua Maritima = 6658.86 Varas.

### OLD MEASURES OF SURFACE.

<i>Old Spanish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Square Yards.	Square Metres.
9 Sqr. Pies	= 1 Sqr. Vara	= .8599409	= .7189683
16 Sqr. Varas	= 1 Sqr. Estadal	= 13.759054	= 11.5084982
50 Sqr. Varas	= 1 Estajo	= 42.9970	= 35.9484163
576 Square Estadals	} = 1 Fanegada	= 1.6874	= 66.26012096
50 Fanegadas	= 1 Yugada	= 81.87	= 3313.00604805

The Fanegada was a very varying measure, in some districts it contained only 500 Square Estadals, or 8000 Square Varas. It was divided into 12 Celeminos, each of 4 Cuartillos and was a square whose side was equal to 24 Estadals. The Arancada was the surface measure for Vineyards, and was uniform throughout Spain. It was a square whose side was equal to 20 Estadals. It contained 400 Square Estadals, or 6400 Square Varas, and was equal to about 1.1370 Acre British. The Cahizada was a vague measure denoting the area on which a Cahiz of Corn could be sown.

### OLD MEASURES OF CAPACITY FOR LIQUIDS.

<i>Old Spanish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Capo	Imperial Gills. = .8377 =	Litres. .12607
4 Capos	= 1 Cuartillo	Imperial Gallons. = .11099 =	.504286
4 Cuartillos	= 1 Azumbre	= .44396 =	2.017145
2 Azumbres	= 1 Cuartilla	= .88793 =	4.03429
4 Cuartillas or 8 Azumbres	= { 1 Arroba Mayor or Cantara }	= 3.55173 =	16.13716
16 Cantaras			

The Cuartilla = 8 Cuartillos. The Wine Bota = 30 Cantares. The Measure for Oil was the *Arroba Menor* of 25 Libras, each of 4 Panillas. The *Arroba Menor* = 2.7652 British Imperial Gallons, or 12.564 Litres.

### MEASURES OF CAPACITY FOR DRY GOODS.

<i>Old Spanish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
4 Ochavillos	= 1 Racion	Bushels. = .00735 =	Litres. .2839
4 Raciones	= 1 Quartillo	= .031409 =	1.1558
2 Quartillos	= 1 Medio	= .062819 =	2.3116
2 Medios	= 1 Almude	= .125638 =	4.6233
12 Almuerzas (Celemines)	= 1 Fanega	= 1.507664 =	55.480
12 Fanegas			

## WEIGHTS.

<i>Old Spanish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
12 Granos	= 1 Tomin	= .02113	= 2.89656 Grammes.
8 Tomines	= 1 Adarme	= .06840	= 7.18968
2 Adarmes	= { 1 Ochavo, or Drachma }	= .12680	= 14.87987
8 Ochavos	= 1 Onza	= .06840	= 28.75875
8 Onzas	= 1 Marco	= .50721	= 230.07
2 Marcos	= { 1 Libra (Castiliana) }	= 1.01442	= 460.14
100 Libras	= 1 Quintal	= 101.442	= 46.014 Kilogrammes.
10 Quintals	= 1 Tonelada	= 1014.42	= 460.14

Besides the ordinary Quintal of 100 Libras there was the Quintal Marco of 150 Libras (the Carga of Peru), equal to 152.168 lbs. av. English, or 690.21 Kilogrammes. In Ships' Freight the Tonelada equal to 20 Quintals.

In Apothecaries' Weights the Onza of the above table was divided into 8 Drachms, each Drachm into 3 Scruples, each Scruple into 2 Obolos, and each Obolo into 3 Caracteres.

The chief unit in Gold and Silver Weights was the *Marco* of the above table. For Gold Weights it was divided into 50 Castellanos, each of 8 Tomines. For Silver Weights it was divided as in the table. The fineness of Gold was expressed by dividing the units of weight into 24 Carats, each of 4 Granos; and the fineness of Silver by dividing it into 12 Dineros, each of 24 Granos.

The Diamond Onza of 140 Carats contained only 560 Granos.

## GIBRALTAR.

The Weights and Measures are chiefly those of the United Kingdom of Great Britain and Ireland, with the following Old Spanish Weights and Measures, viz. :—the *Pipe* = 105 Imperial Gallons; the *Arroba* (liquid measure) = 2.77 Imperial Gallons; the *Arroba* (weight) = 26 lbs. Avoirdupois; the *Quintal* of 100 lbs. = 101½ lbs. Avoirdupois; 5 *Fanegas* of Grain = 7½ Imperial Bushels. (See Spain, p. 167).



**PORTUGAL.**

The Metric system of Weights and Measures is now used in Portugal. This system, which is exactly the same as that of France (see France), was introduced gradually, and the change was effected in a remarkably short period. In 1852 the Government decreed that the Weights and Measures should be re-organized upon the metric basis, and a period of ten years was fixed for its introduction and adoption. Metric *measures of length* came into use in Portugal in January, 1860; Metric *weights* in July, 1861; Metric *surface measures* in July, 1862; and Metric *measures of capacity* in January, 1863.

**HOLLAND.**

In 1820 Holland adopted the Metric system; and the Weights and Measures are the same as those of France, but have different names, as will be seen by the following tables:—

**MEASURES OF LENGTH.**

<i>Dutch value.</i>	<i>Systematic name.</i>	<i>English value.</i> Inches.	<i>Metric value.</i>
	1 Streep =	·08937	= 1 Millimètre
10 Strepen =	1 Duim =	·8987079	= 1 Centimètre
10 Duimen =	1 Palm =	8·987079	= 1 Décimètre
10 Palmen =	1 El =	89·87079	= 1 Mètre
10 Ellen =	1 Roede =	10·986308	= 1 Décamètre
100 Roeden =	1 Mijle =	{ 1093·6082 or nearly 5 fur- longs }	= 1 Kilomètre

**MEASURES OF SURFACE.**

<i>Dutch value.</i>	<i>Systematic name.</i>	<i>English value.</i> Square Inches.	<i>Metric value.</i> Sq. Millimetre.
	1 Vierkante Streep } =	·001550059	= 1
100 Vierkante Streepen } =	{ 1 Vierkante Duim } =	·1550059	Sq. Centimetre = 1
100 Vierkante Duimen } =	{ 1 Vierkante Palm } =	15·500591	Sq. Decimetre = 1
100 Vierkante Palmen } =	{ 1 Vierkante El } =	Sq. Yards. 1·1960333	Centiare or Sq. Metre = 1
100 Vierkante Ellen } =	{ 1 Vierkante Roede } =	119·608321	Are or Sq. Decametre = 1
100 Vierkante Roeden } =	{ 1 Vierkante Bunder } =	Sq. Acres. 2·47114299	Hectare. = 1
100 Vierkante Bunders } =	{ 1 Vierkante Mijle } =	247·114299	Myriare or Sq. Kilometre = 1

## CUBIC MEASURE.

<i>Dutch value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Kubicke Streep	= $\cdot 035317628$	= 1 <small>Cubic Feet.</small> <small>Millistere.</small>
1000 Kubicke Streepen	= 1 Kubicke Duim	= $\cdot 35317628$	= 1 <small>Centistere.</small>
1000 Kubicke Duimen	= 1 Kubicke Palm	= $3\cdot 5317628$	= 1 <small>Decistere.</small>
1000 Kubicke Palmen	= 1 Wisse Kubicke El	= $35\cdot 317628$	= 1 <small>Stere or Cubic Metre.</small>

In measuring the tonnage of Ships,  $1\frac{1}{2}$  Kubicke Ellen = 1 Scheepston, and 2 Scheepstonnen = 1 Scheepslast. The Scheepston is equal to 52·9755 Cubic Feet, and the Scheepslast to 105·951 Cubic Feet English. The Wisse is used in measuring Firewood.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Dutch value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Vingerhoed	= $\cdot 0176077$	= 1 <small>Pints.</small> <small>Centilitre</small>
10 Vingerhoeden	= 1 Maatje	= $\cdot 176077$	= 1 <small>Decilitre</small>
10 Maatjes	= 1 Kan	= $1\cdot 760773$	= 1 <small>Litre</small>
100 Kannen	= 1 Vat or Ton	= $22\cdot 009667$	= 1 <small>Hectolitre</small>

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Dutch value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Maatje	= $\cdot 176077$	= 1 <small>Imperial Pints.</small> <small>Decilitre</small>
10 Maatjes	= 1 Kop	= $1\cdot 760773$	= 1 <small>Litre</small>
10 Koppen	= 1 Schepel	= $2\cdot 200967$	= 1 <small>Imperial Gallons.</small> <small>Décaltre</small>
10 Schepels	= 1 Mud or Zak	= $2\cdot 751208$	= 1 <small>Imperial Bushels.</small> <small>Hectolitre</small>
30 Mudden	= 1 Last	= $10\cdot 31703$	= 30 <small>Imperial Quarters.</small> <small>Hectolitre</small>

A Market Schepel contains  $2\frac{1}{2}$  Schepel, or 25 Koppen, and is equal to 5·5024175 Imperial Gallons English.

## WEIGHTS. (COMMERCIAL).

<i>Dutch value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Korrel	= $1\cdot 5432349$	= 1 <small>Grains Troy.</small> <small>Décigramme</small>
10 Korrel	= 1 Wigtje	= $15\cdot 432349$	= 1 <small>Gramme</small>
10 Wigtje	= 1 Lood	= $154\cdot 32349$	= 1 <small>Décagramme</small>
10 Looden	= 1 Onze	= $220466$	= 1 <small>lbs. av.</small> <small>Hectogramme</small>
10 Onzen	= 1 Pond	= $2\cdot 20466$	= 1 <small>Kilogramme</small>

The Weights used in weighing Gold and Silver are the same as those just given; the Korrel is however subdivided into tenths, hundredths, and thousandth parts.

MEDICINAL WEIGHTS.

<i>Dutch value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes.
	1 Grein =	1·00471	= ·065104
20 Greinen	= 1 Scrupel =	20·094204	= 1·30208
3 Scrupels	= 1 Drachma =	60·28262	= 3·90625
8 Drachmen	= 1 Ons =	482·2609	= 31·25
12 Onsen	= 1 Pond =	{ 5787·1808 or } { ·8267475 lb. }	= 375

The Medical Pond is exactly  $\frac{1}{3}$ ths of the Commercial Pond.

BELGIUM.

WEIGHTS AND MEASURES.

The system of Weights and Measures is the *Mètric*. It is exactly the same as that of France, substituting the name *Livre* for Kilogramme, *Litron* for Litre, and *Aune* for Mètre.

In some of the Provinces local usages are occasionally met with, but for all regular legal transactions the Decimal system is employed.

DENMARK.

MEASURES OF LENGTH.

<i>Danish value.</i>	<i>Systematic name.</i>	<i>English value.</i> Inches. Feet.	<i>Metric value.</i> Metres. Kilometres.
	1 Linie =	·8581	= ·021795
12 Linier	= 1 Tomme =	1·02972	= ·261544
12 Tommer	= 1 Fod =	1·02972	= ·31385
2 Fod	= 1 Alen =	2·05944	= ·627707
3 Alen (or 6 Fod }	= 1 Favn =	6·17833	= 1·888121
2 Favn (or 12 Fod }	= 1 Rode =	12·35666	= 3·766242
24000 Fod, or 2000 Roder }	= { 1 Danish Mile or Mil }	= { Yards. 8237·77349 or } { Miles. 4·68055 }	= 7·532484

One Danish Sea Mile is equal to 23642 Danish Fod; one Geographical Mile (15 to a degree) is equal to 23609.2 Fod. In Nautical language 600 Fod, or 100 Favn are called 1 "Kadellængde." Surveyors divide the Fod, according to the Decimal system, into 10 Tommer; each Tomme into 10 Linier; and 1 Rode into 10 Fod. In Holstein and in Sleswick, Hamburg Measures are mostly used; 23 feet Hamburg Measure being equal to 21 feet Danish.

## MEASURES OF SURFACE.

<i>Danish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Square Foot.	Square Metres.
144 Sq. Linie	= 1 Sq. Tomme	= .08836	= .0006840
144 Sq. Tommer	= 1 Sq. Fod	= 1.060328	= .0985018
		Square Yards.	
144 Sq. Fod	= 1 Sq. Rode	= 16.965172	= 14.18469444

The "Tönde Land" (used in field measurement) of 56000 Square Fod, or 14000 Square Alen = 6597.5670656 English Square Yards, or 1.36813 English Acre, or 4816.27006 Square Mètres, or 48.1627006 Ares; and 11 Tönder land are equal to about 15 English Acres.

## CUBIC MEASURES.

<i>Danish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Cubic Foot.	Cubic Metre.
1728 Cubic Linier	= 1 Cubic Tomme	= .000631	= .00001789
1728 Cubic Tommer	= 1 Cubic Fod	= 1.091836	= .08091479

In Firewood measurement the Favn contains 72 Danish Cubic Fod. It is 6 Fod x 6 Fod x 2 Fod, and is equal to 78.61219 English Cubic Feet, or 2.22586538 Cubic Mètres. In Forest measurement the Favn is 6½ Fod by 6½ Fod by 2 Fod. It contains 84½ Danish Cubic Fod, and is equal to 92.2599 English Cubic Feet, or 2.6123 Cubic Mètres.

MEASURES OF CAPACITY FOR LIQUIDS.

Danish value.	Systematic name.	English value.	Metric value.
		Imperial Pinta.	Litres.
	1 Pægle	= 424785	= 24125
8 Pægle	= { 1 Flaske (only for Liquids) }	= 1274855	= 72375
4 Pægle	= 1 Pot	= 1699146	= 965
2 Potter	= 1 Kande	= 339828	= 193
4 Kander or 8 Potter	= { 1 Viertel (only for Spirits) }	= 1699146 Imperial Gallons.	= 772
38 Potter, or 4½ Viertel	= { 1 Anker (only for Liquids) }	= 8070945	= 3667
136 Potter	= 1 Tonde	= 2888548	= 13124
6 Ankerne	= { 1 Oxehoved (for Wine and Spirits) }	= 4842567	= 22002
4 Oxehoveder	= 1 Fad	= 19370268	= 88008

MEASURES OF CAPACITY FOR DRY GOODS.

Danish value.	Systematic name.	English value.	Metric value.
		Imperial Gallons.	Litres.
	1 Pot	= 21239	= 965
18 Potter	= 1 Skeppe	= 47788 Imperial Bushels.	= 17370
2 Skepper	= 1 Fjerdingskar	= 955769	= 34740
4 Fjerdingskar	= 1 Tönde	= 3823079	= 138960
12 Tönder	= 1 Læst	= 45876948	= 166752

The unit of measures of capacity, both for liquids and solids, is the Pot, which is equal to 54 Cubic Tommer (inches), or  $\frac{1}{4}$  of 1 Cubic Fod.

The following Measures for Wine and Spirits are sometimes (but not frequently) used :—

Danish value.	Systematic name.	English value.	Metric value.
		Imperial Gallons.	Litres.
160 Potter	= 1 Ahme	= 3398288	= 1544
480 Potter	= 1 Pibe	= 10194864	= 4632
1200 Potter	= 1 Stykfad	= 2548716	= 1158

The ordinary large Measure for Dry and Liquid Goods is a Tönde; but this varies in size according to the goods; it is sometimes divided into 8 Skjepper, or 32 Fjerdingskar, &c. Of

course the size of the Skjeppe varies according to the size of the Tönde, of which it is a subdivision. 12 Tönder (Corn, Salt, Coals,) are one Læst. The Commerce Læst is the Standard Measure for Ships, and is equal to 2·52 Tons English.

Beer, and also some Dry Goods, are measured by the Öltönde of 136 Potter, and divided into 4 Fjerdingskar; one Fjerdings equals 2 Otting Kar, each Otting equals 17 Potter.

Corn, and many other solids, are measured by the Korntönde of 144 Potter. The Korntönde is divided into 8 Skjeppe, or 32 Fjerdingskar, or 64 Ottingkar.

Salt, Coal, Charcoal, and Bark are measured by the Salt-tönde of 176 Potter. The Salt-tönde is divided as the Korn-tönde. The Tar-tönde is equal to 120 Potter.

## WEIGHTS.

Danish value.	Systematic name.	English value.	Metric value.
	1 Ort =	Troy Grains. 7·71631 =	Grammes. ·05
10 Ort	= 1 Kvint =	77·1631 =	5
100 Kvinten	= 1 Pund =	lbs. av. 1·10233 =	500
100 Pund	= 1 Centner =	110·233 =	{ 50000 or Kilogrammes 50
40 Centner	= 1 Læst =	4409·32 =	2000
52 Centner	= 1 Skiplæst =	5732·116 =	2600

This division of the pound, according to the Decimal system, has been in force since 1st July, 1861. Until then the Pund was divided into 32 Lod, each of 4 Kvintin, each of 4 Ort, and these weights are still in temporary use.

A "Lispund" is 16 Pund; a "Skipund" is 320 Pund. Besides these Commercial Weights, there is a different weight for Silver and Gold, and a third used only for drugs.

## WEIGHTS FOR SILVER AND GOLD.

Danish value.	Systematic name.	English value.	Metric value.
4 Ort	= 1 Kvint =	Troy Grains. 55·28125 =	Grammes. 3·676
4 Kvintin	= 1 Lod =	221·125 =	14·704
16 Lod, or 24 Karat )	= 1 Mark =	lbs. av. ·55116 =	235·264
2 Marks	= 1 Pund =	1·10233 =	470·588
3 Green	= 1 Gran =	40·1875 =	2·4509
4 Gran	= 1 Karat =	160·75 =	9·8039

The Danish Silver Pund, or Solvpund, is  $\frac{1}{17}$  less than the ordinary Pund, and is equal to  $9776\frac{1}{17}$  Dutch "As." The Solvpund may, according to the above table, be divided in two ways, viz. :—either into 32 Lod = 128 Kvinten = 512 Ort; or into 48 Karat (each equal to  $1\frac{1}{2}$  Lod) = 192 Gran = 576 Green.

## APOTHECARIES' WEIGHT.

<i>Danish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
20 Gran	= 1 Skrupel	= 2·797265	= 1·241808
3 Skrupel	= 1 Drachme	= 55·945312	= 3·725625
6 Drachmer	= 1 Unze	= 335·671875	= 22·35375
16 Unzer	= 1 Pund	= { 5370 $\frac{1}{2}$ or lbs. av. .7672 }	= 357·66

The Medical Pund is equal to 357·66 French Grammes, and therefore nearly  $\frac{1}{3}$  of an ordinary Danish Pund. In Holstein, and in Lauenburg, and partly in Sleswick, different German Weights are still in use, though the legal unit of Weight is the ordinary Danish Pund.

## SLESWICK-HOLSTEIN.\*

The Weights and Measures are the same as those of Denmark. No change having been made since Sleswick-Holstein was severed from the Danish Crown, in October, 1864.

## SWEDEN.

## MEASURES OF LENGTH.

<i>Swedish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metres.
1 Linie	=	·116893	= 0·02969
10 Linier	= 1 Tum	= 1·16893	= 0·29690
10 Tumer	= 1 Fot	= 11·68923	= 2·96901
10 Fot	= 1 Stang	= 9·741083	= 2·46901
10 Stanger	= 1 Ref	= 32·470276	= 29·6901
360 Ref	= 1 Meile	= { 11689·299360 or Miles. 6·64164 }	= { 10688·436 or Kilometres, 10·688436 }

\* The legal denominations of money of account, while the Duchies of Sleswick and Holstein formed a part of the Kingdom of Denmark, were the same as those of Denmark (see p. 51); but the coins in circulation were chiefly those of Hamburg and Lubeck. No change has as yet been made in the currency, or money of account, since the cession of the Duchies to Prussia and Austria, under the Treaty of Vienna, of 30th October, 1864.

The Aln of 2 Fot = .6494 of an English Yard, or .5938 Mètre, and the Faden of 6 Fot = 5.8446 English Feet, or 1.484505 Mètre. The Standard Swedish Fot may be found from the following rule:—a pendulum in vacuo beating seconds of mean solar time at Stockholm at the sea level when the thermometer is at 15° Celsius, measures 3.35064 Swedish Fot.

## MEASURES OF SURFACE.

<i>Swedish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
100 Sqr. Linier } = 1 Sq. Tum =		Square Inches. 1.36839 =	Square Metres. .00881
100 Sqr. Tumer } = 1 Sq. Fot =		136.63973 = Square Feet.	.088150
100 Sqr. Fot } = 1 Sq. Stang =		94.888704 =	8.81502
100 Sqr. Stanger } = 1 Sq. Ref =		{ 9488.87045 or Acres. .21762 } =	{ 881.50203 or Acres. 8.815023

The Square Aln of 4 Square Fot = 3.79554 English Square Feet, or .352600815 Square Mètre. The Tunmland of 56000 Square Fot, or 14000 Square Aln, or 5.6 Square Ref = 5904.186057 English Square Yards, or 1.21987 English Acre, or 49.364114 Ares.

## CUBIC MEASURES.

<i>Swedish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
1000 Cubic Tumer = 1 Cubic Fot =		Cubic Feet. .9249108 =	Cubic Metres. .02617188
8 Cubic Fot = 1 Cubic Aln =		7.3944864 =	.20937504

## MEASURES OF CAPACITY FOR DRY GOODS AND LIQUIDS.

<i>Swedish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
1000 Cubic Linier = 1 Cubic Tum =		Imperial Pints. .0460* =	Litres. .02617
100 Cubic Tumer = 1 Kanna =		4.6083 =	2.617188
1000 Cubic Tumer } or 10 Kanna } = 1 Cubic Fot =		Imperial Gallons. 4.7604 =	26.17188
8 Cubic Fot = 1 Cubic Aln =		46.0832 =	209.3750

\* These English values have been calculated at the rate of 277.274 English Cubic Inches to the British Imperial Gallon, the equivalent of the Swedish Cubic Fot being taken as 1597.2228483789 English Cubic Inches.



## WEIGHTS.

<i>Swedish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<i>Grains Troy.</i>	<i>Grammes.</i>
	1 Korn =	·6559 =	·042583
100 Korn	= 1 Ort =	65·59 =	4·253395
		<i>lbs. av.</i>	
100 Ort	= 1 Skäl pund =	·9377 =	425·3395
100 Skäl pund	= 1 Centner =	93·77289 =	42·53395
100 Centner	= 1 Ny-läst =	{ 9377·289 or Cwt. 83·72321 }	= 4253·895

Medical men and Apothecaries use indifferently both the Legal system of Weights, just given, and the old Pharmaceutical Weights of the *Grain*, the *Scruple*, and the *Ounce*. In the country the new Weights are most generally used in writing Prescriptions and compounding Drugs.

The Weights and Measures given above are the present Legal ones, but the old, or common system superseded by them is still occasionally used, and is as follows:—*Length*.—Fot of 12 Tumer, of 12 Linier = 11·68923 English Inches, or ·296901 Mètre; the Aln of 2 Fot, and the Faden of 6 Fot. *Surface*.—The Tunmland of 32 Kappland, or 14000 Square Aln = 1·21987 English Acre, or 49·364114 Ares. *Cubic Measures*.—The Cubic Faden, Aln, Fot, and Linie. *Capacity (a) Dry Goods*.—The Kanna was the fundamental unit both for Dry Goods and Liquids. It was equal to ·57603 British Imperial Gallon or 2·617189 Litres. The Tunna was a measure whose cubic contents varied with different sorts of goods. In Fruit it was 56, in Salt or Lime, it was 59½, in Grain (heaped measure) it was 63, in Malt it was 66½, and in Fresh Herrings it was 80 Kannas. There was also a Tunna of 48 Kannas. The Tunna was divided into 2 Spann, each of 2 Half-Spann, each of 2 Viertel, each of 4 Kappas. The Kanna in Dry Measure was divided into 2 Stoop, each of 4 Quartiers, each of 4 Ort. The Tunna of 56 Kannas = 4·03221 British Imperial Bushels, or 146·563 Litres. The Tunna of 63 Kannas = 4·53624 British Imperial Bushels, or 164·8829 Litres. A Last of Coal was 12 Tonnas, each of 63 Kannas. *(b) Liquids*.—The Kanna, each of 2 Stoops, each of 2 Quartiers, each of 4 Jungfrau = ·57603 British Imperial Gallon, or 2·617189 Litres. The Beer Tunna contains 48 Kannas. *Weights*.—Before the adoption of the new system there were 5 different sorts of Weights in use in Sweden, namely:—1. Commercial Weight. 2. Iron or Freight Weight. 3. Mark Weight used by Miners. 4. Mark Weight used in country towns. 5. Apothecaries' Weight. The Pund of 32 Lood, each of 4 Quentchen. The Lispund of 20 Pund, and the Skeppund of 20 Lispund. The Skeppund, *Commercial Weight* = 400 Pund Commercial Weight,

but the Skeppund, *Freight Weight*, of 20 Lispund, each of 20 Pund, is equal to only 320 Pund Commercial Weight. A Centner is 120 Pund Commercial Weight.

A Pund, Commercial Weight = .9377 lb. av. English, or 425.8895 Grammes.

A Pund, Freight Weight = .75016 lb. av. English, or 340.272 Grammes.

A Pund, Miners' Mark Weight = .8285 lb. av. English, or 375.826 Grammes.

A Pund, Country Towns' Mark Weight = .7891 lb. av. English, or 357.956.

A Pund, Apothecaries' Weight = .7858 lb. av. English, or 356.437 Grammes.

The Old Apothecaries' Weights were as follows:—

<i>Swedish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
20 Grains	= 1 Scruple	= 19.1	= 1.23429
8 Scruples	= 1 Drachma	= 57.8	= 3.71288
8 Drachmas	= 1 Untz	= 458.4	= 29.70308
12 Untzer	= 1 Skalpund	= 5501	= 356.437

## NORWAY.

The Weights and Measures are the same as those of Denmark, but the introduction of a Decimal system is contemplated.

## SWITZERLAND.

In Weights and Measures a mixed system, partly Decimal and partly Duodecimal, prevails in Switzerland.

### MEASURES OF LENGTH.

<i>Swiss value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metres.
10 Striche	= 1 Striche	= .01181	= .0008
10 Linien	= 1 Linie	= .11811	= .008
10 Linien	= 1 Zoll	= 1.181123	= .08
10 Zoll	= 1 Fuss	= 11.811297	= .8
2 Fuss	= 1 Elle	= 1.6561789	= .6
6 Fuss	= 1 Klafter	= 1.9685395	= 1.8
10 Fuss	= 1 Ruthe	= 3.280899	= 3
		Yards.	Kilometres.
1600 Ruthen	= { 1 Schweizer- stunde or Lien }	= { 5249.48866 Miles. or 2.98268 }	= 4.8

The Geographical Mile is equal to 24690 Fuss. An English Yard = 3·048 Fuss; an English Foot = 1·016 Fuss; and an English Inch = 8·46 Linien. The Schweizerstunde = 4800 Mètres.

The denominations *Ruthen*, *Fuss*, *Zoll*, *Linien*, and *Striche*, are denoted by the marks, thus:—5°, 8', 8". 4"', 6''' = 5 Ruthen, 8 Fuss, 8 Zoll, 4 Linien, 7 Striche. The Elle is also called *Brache*, or *Half-Staab*, and is used in measuring Ribbons, &c. A *Staab* is 2 Ellen or 4 Fuss, and is used in measuring Broad Cloth, and Linen, &c.

MEASURES OF SURFACE.

Swiss value.	Systematic name.	English value. Sq. Feet.	Metric value. Sq. Metres.
100 Sq. Zoll	= 1 Sq. Fuss =	·9687860 =	·09
86 Sq. Fuss	= 1 Sq. Klafter =	84·876828 =	3·24
100 Sq. Fuss	= 1 Sq. Ruthe =	10·7642982 =	9
400 Sq. Ruthen or 40900 Sq. Fuss	} = 1 Juchart	= 4805·71928	= 36
6400 Jucharten	= 1 Sq. Stunde =	5698·52	= 230400

In Meadow Land a Juchart is 850, and in Woodland it is 450 Square Ruthen.

CUBIC MEASURES.

Swiss value.	Systematic name.	English value. Cubic Feet.	Metric value. Cubic Metres.
1000 Cubic Zoll	= 1 Cubic Fuss =	·9585 =	·027
216 Cubic Fuss	= 1 Cubic Klafter =	205·6662 =	5·882
1000 Cubic Fuss	= 1 Cubic Ruthe =	958·5476 =	27

The *Klafter* used in the measurement of Firewood is always in area a Square Klafter, or 86 Square Fuss, but its depth varies in different countries.

MEASURES OF CAPACITY FOR DRY GOODS.

Swiss value.	Systematic name.	English value. Imperial Bushels.	Metric value. Litres.
	1 Imi	= 0·41268 =	1·5
10 Imi	= { 1 Maass (Viertel) Sertter }	= 4·1268 =	15
10 Maass (Viertel) Sertter	} = 1 Malter	= 41·268 =	150

The *Mäass* (*Viertel Serter*) is the unit of Measures of Capacity for Dry Goods. It contains exactly 80 lbs. distilled water at 89 $\frac{1}{2}$ ° F. (8 $\frac{1}{4}$ ° Réaumur) or  $\frac{1}{16}$  of a Cubic Fuss.

In trade the Double-Maass or Double-Viertel is used, and the Maass (*Viertel Serter*) is divided fractionally into the Vierling or  $\frac{1}{4}$  Maass (*Viertel Serter*) and the *Mäassleing*,  $\frac{1}{8}$  Maass (*Viertel Serter*). The Maass (*Viertel Serter*) and the *Malter* have the form of hollow cylinders; when used as testing measures, their depth is equal to half the diameter.

## MEASURES OF CAPACITY FOR LIQUIDS.

Swiss Value.	Systematic name.	English value.	Metric value.
2 Halbschoppen (Achtelmaass)	} = 1 Schoppen	Galls. = 2.6412	Litres. = .875
2 Schoppen (Viertelmaass)		Imperial Pints. = 1.82058	= .75
2 Halbmaass	= 1 Maass	= 2.64116	= 1.5
100 Maass	= 1 Saum	Imperial Gallons. = 33.015	= 150

The Maass contains exactly 8 lbs. of distilled water at 89 $\frac{1}{2}$ ° F. (8 $\frac{1}{4}$ ° R.) or  $\frac{1}{16}$  of a Cubic Fuss. The Saum is subdivided into 4 parts, each of which is called an *Eimer*. The Maass and its divisions and multiples are measures in the form of hollow cylinders, the depth of which is double the diameter.

## WEIGHTS.

Swiss value.	Systematic name.	English value.	Metric value.
4 Quntli	= 1 Loth	lbs. Av. = .084447	Grammes. = 15.625
2 Loth	= 1 Unze	= .068895	= 31.25
16 Unzen	= 1 Pfund	= 1.10238	= 500
100 Pfund	= 1 Centner	= 110.233	Kilogrammes. = 50000 or 50

A Cwt. English is nearly equal to 102 Swiss Pfund. The Pfund is divided fractionally into *Halves*, *Quarters*, and *Eighths*, named, *Half-pfund*, *Viertel-pfund*, and *Achtel-pfund*.

The Pfund is also divided according to the Metric system, into 500 Grammes, or 5000 Decigrammes, or 50,000 Centigrammes, or 5,000,000 Milligrammes, as follows:—

Swiss value.	Systematic name.	English value.
	1 Milligramme	Grains Troy. = .01543
10 Milligrammes	= 1 Centigramme	= .15433
10 Centigrammes	= 1 Decigramme	= 1.5433
10 Decigrammes	= 1 Gramme	= 15.43262
500 Grammes	= 1 Pfund	lbs. Av. = 1.1023

## APOTHECARIES' WEIGHTS.

<i>Swiss value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
20 Grains	= 1 Scruple =	<sup>Troy Grains.</sup> 20·09455 =	1·80208 Grammes.
8 Scruples	= 1 Drachm =	60·28867 =	3·90625
4 Drachms	= 1 Loth =	241·18468 =	15·625
2 Loth	= 1 Unze =	482·26937 =	31·25
12 Unzen	= 1 Pfund =	5787·28350 =	375

The Apothecaries' Pfund is  $\frac{1}{4}$  of the common Pfund.

## ITALY.

The Weights and Measures of the Kingdom of Italy are the same as those of France, and are as follows:—

## MEASURES OF LENGTH.

<i>Italian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Millimetro =	<sup>Inch.</sup> ·03937079 =	1 Millimetre
10 Millimetri =	1 Centimetro =	·3937079 =	1 Centimetre
10 Centimetri =	1 Decimetro =	3·937079 =	1 Decimetre
10 Decimetri =	1 Metro =	39·37079 =	1 Mètre
10 Metri =	1 Decametro =	<sup>Yards.</sup> 10·93638 =	1 Decametre
10 Decametri =	1 Ettometro =	109·3638 =	1 Hectometre
10 Ettometri =	1 Chilometro =	1093·638 =	1 Kilometre
10 Chilometri =	1 Miriametro =	<sup>Miles.</sup> 6·2138 =	1 Myriametre

## LAND MEASURES.

<i>Italian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Centiara =	<sup>Square Yards.</sup> 1·1960832 =	1 Centiare or Square Mètre
100 Centiaras =	1 Ara =	119·6083 =	
100 Aras =	1 Ellara =	$\left\{ \begin{array}{l} 11960\cdot832 \text{ or} \\ \text{Acres. Sq. Yds.} \\ 2 \quad 2280\cdot83 \end{array} \right\}$ =	1 Hectare

## CUBIC MEASURES.

<i>Italian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
$\frac{1}{10}$ of a Stero	= 1 Decistero	= 3·581628	= 1 Decistere
10 Decisteri	= 1 Stero	= 35·81628	= 1 Stere
10 Steri	= 1 Decastero	= 358·1628	= 1 Decastero

## MEASURES OF CAPACITY FOR LIQUIDS AND SOLIDS.

<i>Italian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
1000th of a Cubic Decimetro	} = 1 Millilitro	= Imperial Pints. ·00176	= 1 Millilitre
10 Millilitri		= ·017607	= 1 Centilitre
10 Centilitri	= 1 Decilitro	= ·17607	= 1 Decilitre
10 Decilitri	= 1 Litro	= 1·7607	= 1 Litre
10 Litri	= 1 Decalitra	= 2·20096	= 1 Decalitre
10 Decalitra	= 1 Ettolitro	= 22·0096	= 1 Hecolitre
10 Ettolitri	= 1 Chilolitro	= Quarters. 3·48901	= 1 Kilolitre

## 'WEIGHTS.

<i>Italian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
1000th of a Gramma	= 1 Milligramma	= Grains Troy. ·01548	= 1 Milligramme.
10 Milligramme	= 1 Centigramma	= ·1548262	= 1 Centigramme.
10 Centigramme	= 1 Decigramma	= 1·548262	= 1 Decigramme.
10 Decigramme	= 1 Gramma	= 15·48262	= 1 Gramme.
10 Gramme	= 1 Decagramma	= 154·8262	= 1 Decagramme.
10 Decagramme	= 1 Ettogramma	= lbs. av. 2·20466	= 1 Hectogramme.
10 Ettogramme	= 1 Chilogramma	= 2·20466	= 1 Kilogramme.
10 Chilogramme	= 1 Miriagramma	= 22·0466	= 1 Myriagramme.
10 Miriagramme	= { 1 Quintale Metrico }	= Cwt. 1·97	= 1 Quintal Metrique.
10 Quintal Metrici	= { 1 Tonnelata de mare }	= 19·7	= 1 Tonneau Metrique.

Previous to the year 1859, when most of the Italian States were united to form the "Kingdom of Italy," each State had its own Weights and Measures. The legal Weights and Measures of the Kingdom of Italy, as above given, are those of Sardinia (Piedmont and Savoy). As sufficient time has not yet elapsed for the general adoption of one system, the Weights and Measures of "The Two Sicilies," "Tuscany," and "Lombardy," may still be found useful for reference.

STATES OF THE CHURCH—(ROME).

MEASURES OF LENGTH—(ITINERARY).

Roman value.	Systematic name.	English value.	Metric value.
		Inches.	Metres.
	1 Pie =	11·72004	·2976826
5 Pie des =	1 Passo =	58·60020	1·488413
1000 Passos =	1 Miglio =	1627·7833*	1·488413
		Yards.	Kilometres.

The Canna d'ara divided into 9 Palmi = 44·29218 English Inches, or 1·125 Mètres.

The Braccio d'ara = 29·52809 English Inches, or ·75 Mètre.

The Palmo d'ara = 4·921347 English Inches, or ·125 Mètre.

MEASURES OF LENGTH—(MERCANTILE).

Roman value.	Systematic name.	English value.	Metric value.
		Inches.	Metres.
	1 Parto =	3·268815	·088026
3 Partis =	1 Palmo =	9·806445	·249078
8 Palmi =	1 Canna =	2·17921	1·99263
		Yards.	

The Mercantile Braccio = 26·8784298 English Inches, or ·670 Mètre.

The Braccio for Cloth and Linen = 25·00045 English Inches, or ·635 Mètre.

MEASURES OF LENGTH—(ARCHITECTS').

Roman value.	Systematic name.	English value.	Metric value.
		Inches.	Metres.
	1 Decimo =	·0783	·00186
2 Decimi =	1 Minuto =	·146599	·008728
5 Minuti =	1 Oncie =	·782998	·0186178
12 Oncie =	1 Palmo =	8·795985	·223414
16 Oncie or 1½ Palmi =	1 Piede =	11·72798	·297886
3 Palmi =	1 Passo =	26·887955	·670242
5½ Palmi =	1 Stajualo =	1·40491	1·284631
10 Palmi or 7½ Piedes =	1 Canna =	2·44388	2·23414
10 Stajuali =	1 Catena =	14·04914	12·84631
		Yards.	

\* About 7 and two-fifths Furlongs, or ·926 Mile English.

## MEASURES OF SURFACE.

<i>Roman value.</i>	<i>Systematic name.</i>	<i>English value.</i> Square Yds.	<i>Metric value.</i> Square Metres.
	1 Sqr. Catena =	197·87883	= 165·0276
7 Sqr. Catenas =	1 Scorzo	= 1381·648	= 1155·1987
4 Scorzi =	1 Quarta	= 1·141856	= 46·207750
4 Quartas =	1 Rubbio	= 4·567424	= 184·881

The Pezza is also used in Square Measures. It is the  $\frac{1}{4}$ th part of a Rubbio, and therefore 7 Pezzas are equal to 1 Rubbio.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Roman value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Bushels.	<i>Metric value.</i> Litres.
4 Decimos =	1 Starello	= 5063	= 18·40375
2 Starelli =	1 Quaterello	= 1·0126	= 36·8075
2 Quaterelli =	1 Quarto	= 2·0252	= 73·615
2 Quarti =	1 Rubjstalle	= 4·0504	= 147·23
2 Rubjatelli =	1 Rubbio	= $\left\{ \begin{array}{l} 8·1008 \text{ or} \\ \text{Quarters.} \\ 1·0126 \end{array} \right\}$	= $\left\{ \begin{array}{l} 294·46 \text{ or} \\ \text{Hectolitres.} \\ 2·9446 \end{array} \right\}$

The Quarto is also divided into 5 $\frac{1}{2}$  Scorzi, each of 4 Quartucci, or into 4 Starelli, each of 1 $\frac{1}{2}$  Scorzi, each of 4 Quartucci.

The Scorzo is equal to 3682 British Imperial Bushel or 183845 Litres.

The Quartuccio is equal to 09205 British Imperial Bushel or 33461868 Litres.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Roman value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pints. Imperial Gallons.	<i>Metric value.</i> Litres. Hectolitres.
4 Quartucci =	1 Foglietta =	8025495 =	3·64685
4 Fogliette =	1 Boccale =	3·210198 =	14·5854
32 Boccali =	1 Barile =	12·8407921 =	58·3416
16 Barili =	1 Botte =	205·4526736 =	$\left\{ \begin{array}{l} 933·4656 \text{ or} \\ \text{Hectolitres.} \\ 9·334656 \end{array} \right\}$

The Barile of Oil contains 28 Boccali, and is equal to 12·651289 British Imperial Gallons, or 57·4806 Litres.



The Soma of Oil of 80 Boccali, or 24 Barile, is equal to 36·14654 British Imperial Gallons, or 164·23 Litres.

The Soma is also divided in 2 Pelli (or Mastelli), each of 10 Cngnatelli.

WEIGHTS.

<i>Roman value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Grano	= Troy Grains = .758	= Grammes. = 0·49087
24 Grani	= 1 Denaro	= 18·2	= 1·177625
24 Denari	= 1 Oncia	= 436·2	= 28·268
12 Oncia	= 1 Libbra	= lbs. Av. = 7·4771	= 339·156
10 Libbri	= 1 Decino	= 7·4771	= Kilogrammes. = 3·39156
100 Libbri	= { 1 Centinajo or Cantaro Piccolo }	= 74·771	= 33·9156
10 Centinaji	= { 1 Migliajo or Cantaro Grosso }	= 747·71	= 339·156

The Ancient Libbra is equal to 7094 lb. The Apothecaries' Libbra is of the same weight as the Commercial Libbra. The Apothecaries' Libbra is divided into 12 Oncia, the Oncia into 3 Scruples, and the Scruple into 24 Grani.

The Weights used for Gold and Silver are the Metric Gramme weights, the same as those of France, namely:—Milligramme, Centigramme, Decigramme, Gramme, Decagramme, Hectogramme, Kilogramme. (See France).

PAPAL STATES—(BOLOGNA).

MEASURES OF LENGTH.

<i>Bolognese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Linie	= Inches. = 1039	= Metres. = 0·02683
12 Linien	= 1 Zoll	= 1·2468	= 0·32
12 Zoll	= 1 Pié	= 14·9609	= 3·84
5 Piedos	= 1 Passo	= 74·8045	= 1·92
10 Pié	= 1 Pertica	= Yards. = 4·155805	= 3·85

The Braccio for Cloth is equal to 25·198 English Inches, or 64 Mètre.

The Braccio for Silk measurement is equal to 23·47 English Inches, or 594 Mètre.

## MEASURES OF SURFACE.

<i>Bolognese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Sq. Yards.	Sq. Metres.
	1 Sq. Pie =	1727072	148225
100 Sq. Piedes } -1 Sq. Pertica =		17·2707152	14·8225
140 Sq. Pertica } -1 Tornatura =	{ 2417·900128 or Acres. 49956 }	{ 2075·15 or Acres. 20·7515 }	

The Biolca is equal to ·6997 of an English Acre.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Bolognese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Bushels.	Litres.
	1 Quarticino =	·067615	2·45766
4 Quartucini =	1 Quartarolo =	·27046	9·830625
4 Quartaroli =	1 Stajo =	1·08184	39·3225
2 Staji =	1 Corba =	2·16368	78·645

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Bolognese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Gallons.	Litres.
	1 Fogliette =	·0720824	·3274625
4 Foglietti =	1 Bocale =	·2883295	1·30985
15 Bocali =	1 Quartarolo =	4·3249425	19·64775
4 Quartaroli =	1 Corba =	17·29977	78·591

## WEIGHTS.

<i>Bolognese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
	1 Grano =	·727106	·047115
4 Grani =	1 Carato =	2·908427	·1884635
10 Carato =	1 Ferlino =	29·08427	1·884635
16 Ferlini =	1 Unze =	465·3484	30·15416
12 Unzen =	1 Libbra =	lbs. av. ·79774	361·85
25 Libbri =	1 Peso =	19·9485	9046·25

## THE TWO SICILIES—(I. NAPLES).

The Neapolitan system of Weights and Measures (introduced 22nd April, 1840), like the Metric system, was founded upon a basis furnished by Nature.

The Quadrant of the Earth's Meridian was divided into 9 equal parts called *Degrees*, and each Degree into 60 equal parts called *Minutes*. One of these *Minutes* was the Neapolitan *Miglio* or Mile. The *Thousandth* part of the *Miglio* was the *Passo*, and the *Seventh* part of the *Passo* was the *Palmo*. The *Palme* was the unit of Measures of Length.

## MEASURES OF LENGTH.

<i>Neapolitan value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Centesimo =	<sup>Inches.</sup> ·1041552 =	<sup>Metres.</sup> ·0026455
10 Centesimos =	1 Decimo =	1·041552 =	·026455
10 Decimos =	1 Palmo =	<sup>Feet.</sup> ·86796 =	·26445
7 Palmo =	1 Passo =	6·07572 =	1·85185
10 Palmo =	1 Canna =	8·6796 =	2·6455
1000 Passo =	1 Miglio =	<sup>Yards.</sup> { 2025·24 or Mile. 1·15070 } =	{ 185·85 or Kilometres. 1·85185 }

In ordinary Commercial transactions the *Palmo* was subdivided into 12 *Oncie*, the *Oncia* into 5 *Minuti*, and the *Minuto* into 2 *Punti*. The *Oncia* is equal to ·86796 English Inch, or ·0220458 *Mètre*; the *Minuto* is equal to ·173592 English Inch, or ·004409166 *Mètre*; and the *Punto* is equal to ·086796 English Inch, or ·002204583 *Mètre*.

## MEASURES OF SURFACE.

<i>Neapolitan value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
100 Sq. Palmi =	1 Sq. Canna =	<sup>Square Yards.</sup> 8·37060624 =	<sup>Square Metres.</sup> 6·99867
10 Sq. Canne =	1 Sq. Decime =	83·7060624 =	69·9867
100 Sq. Canne =	1 Moggio =	837·060624 =	699·867

## CUBIC MEASURES.

The unit of Cubic Measures was the Cubic Canna of 1000 Cubic Palmi. It was equal to 653·88162 Cubic Feet English. The Cubic Palmo is equal to 1129·917448 Cubic Inches English. The Cubic Canna used in the measurement of Firewood contained only 256 Cubic Palmi, and was equal to 167·89868 English Cubic Feet, or 4·789885 Cubic Metres.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Neapolitan value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Bushel.	<i>Metric value.</i> Litres.
	1 Quarto =	·33204 =	13·88625
2 Quarti	= 1 Mezzetto =	·76408 =	27·7725
2 Mezzetti	= 1 Tomolo =	1·52816 =	55·5451
36 Tomoli	= 1 Carro =	6·87672 =	19·9962

The Tomolo is also subdivided into 8 Stapelli, and each Stapello into 8 Misure. The Stapello is equal to 1·52816 Imperial Gallons, or 6·9481 Litres; and the Misure is equal to 2·087546 Imperial Quarts, or 2·3143 Litres.

## MEASURES OF CAPACITY FOR LIQUIDS.

## (a) WINE AND SPIRITS, &amp;c.

<i>Neapolitan value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Gallons.	<i>Metric value.</i> Litres.
60 Caraffe	= 1 Barile =	9·60178 =	43·625
12 Barili	= 1 Botte =	115·22136 =	523·500
2 Botte	= 1 Cano =	230·44272 =	1047·000

## (b) OIL.

		<i>Imperial Gallons.</i>	<i>Litres.</i>
	1 Misurette =	·09261 =	·42076
6 Misurette	= 1 Quarto =	·55566 =	2·5246
4 Quarti	= 1 Stajo =	2·222625 =	10·0984
16 Stajos	= 1 Salma =	35·562 =	161·574

## WEIGHTS.

## (a) GOLD, SILVER, AND MEDICINE WEIGHTS.

<i>Neapolitan value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes.
	1 Grano =	·68752 =	·044549
10 Grani	= 1 Obolo =	6·87521 =	·44549
20 Grani or 2 Oboli	= { 1 Scropolo or Trappeso } =	13·75042 =	·89099
3 Scropolo	= 1 Dramme =	41·251264 =	2·67299
10 Dramme	= 1 Oncia =	412·51264 =	26·7299
12 Oncie	= 1 Libbra =	7071·6453 =	320·759
100 Libbre	= { 1 Cantaro Piccolo } =	70·7164536 =	32·0759

(b) COMMERCIAL WEIGHTS.

		Troy Grains.		Grammes.
1 Trappeso	=	13·7504½	=	·891
		lbs. av.		
100 Trappesi = 1 Decime	=	·19643	=	89·1
10 Decimes = 1 Rottolo	=	1·9643	=	891
100 Rottoli	= { 1 Cantaro Grosso }	= 196·430	=	Kilogrammes. 89·100

(c) ASSAYERS' WEIGHTS.

Assayers used to express the fineness of Gold and Silver sometimes in *thousandth parts*, as in France, also sometimes by dividing the ounce of Gold into 24 Carats, and the Carat into 100 parts, and the ounce of Silver into 12 Denari, each of 100 parts.

II. SICILY.

MEASURES OF LENGTH.

<i>Sicilian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
12 Linien = 1 Oncie	=	Inches ·846767	Metres ·0215
12 Oncie = 1 Palmo	=	10·161207	·25809
2 Palmi = 1 Pasetto	=	20·322414	·51618
4 Pasetti = 1 Canna	=	Yards, 2·25804	2·06472
4 Canna = 1 Catena	=	9·03218	8·25888
4 Catena = 1 Corda	=	36·128736	33·03552 <sup>m</sup>
45 Corde = 1 Miglio	=	{ 1625·79312 or Mile. ·92374 }	{ 1486·5984 or Kilometres. 1·48659

MEASURES OF SURFACE.

<i>Sicilian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
1 Sqr. Canna = 1 Quartiglio	=	Square Yards, 5·098745	Square Metres. 4·263069
4 Quartigli = 1 Quarto	=	20·394978	17·052274
4 Quarti = 1 Carrozzo	=	81·579914	68·209098
4 Carrozzi = 1 Mondello	=	326·319657	272·836395
4 Mondelli = 1 Tumolo	=	1305·278628	1091·345581
4 Tumoli = 1 Bisacco (a)	=	Acres, 1·02709	Acres. P <sup>2</sup> M <sup>2</sup> 43·653823
4 Bisaccos = 1 Salma (b)	=	4·10885	174·615293

(a) is equal to 5231·114512 English Square Yards; (b) is equal to 20384·453051 English Square Yards.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Sicilian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Bushels.	<i>Metric value.</i> Litres.
	1 Carozzo	= 0.29314	= 1.07456
4 Carozzi	= 1 Mondello	= 1.17256	= 4.29825
4 Mondelli	= 1 Tumolo	= 4.69026	= 17.193
4 Tumoli	= 1 Bisacco	= 1.876105	= 68.772
4 Bisacci	= 1 Salma	= 7.504422	= 275.088

The Salma given in the table is the ordinary Salma; the Salma Grossa is equal to 9.47 British Imperial Bushels.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Sicilian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Gallons.	<i>Metric value.</i> Litres.
	1 Quartucco	= 1.892	= 8.5965
20 Quartucci or 4 Caroffis	} = 1 Quartaro	= 3.783461	= 17.193
2 Quartari	= 1 Barile	= 7.566922	= 34.386
4 Barilli	= 1 Tonna	= 30.267688	= 137.544
8 Barilli	= 1 Salma	= 60.535376	= 275.088
4 Salmas	= 1 Botte	= 242.141504	= 1100.352

## WEIGHTS.

<i>Sicilian value.</i>	<i>Systematic name.</i>	<i>English value.</i> lb. av.	<i>Metric value.</i> Kilogrammes.
	1 Oncie	= 0.583	= 0.26447
12 Oncie	= 1 Libbro	= 6.996	= 3.17868
30 Oncie	= 1 Rottolo	= 1.7492	= 7.9342
100 Rottoli	= 1 Cantaro	= 174.92	= 79.342

The Last is 25 Cantaros. The Rottolo and Cantaro of this table are the Rottolo and Cantaro Sottile.

The Rottolo Grosso has 33 Oncie, and is equal to 1.923 lbs. av. English, or .87276 Kilogrammes.

The Cantaro Grosso is equal to 192.3 lbs. av. English, or 87.276 Kilogrammes.

In Messina Oil is sold by the Caffiso, equal to 2.602042 British Imperial Gallons, or 11.82 Litres, and is reckoned by weight at 12½ Rottoli Grossi, or 24.087 lbs. av. English.

In Palermo, Oil is sold by the Cantaro Grosso.

## TUSCANY.

<i>Tuscan value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Punto =	Line. ·124076 =	Metres. ·000203
12 Puntos	= 1 Denaro „	1·48892 „	·002431
12 Denari	„ 1 Soldo „	Inches. 1·148892 „	·029181
10 Soldi	„ Palmo „	11·48892 „	·291815
20 Soldi or 2 Palmi }	{ 1 Braccio de Panno } „	Feet. 1·91482 „	·58365
2 Braccias	„ 1 Pasetto „	3·82964 „	1·16730
4 Braccias de Panno }	{ 1 Canna (Com- mercial) } „	7·65928 „	2·33460
5 Braccias de Panno }	{ 1 Canna (Survey- ors' ) } „	9·5741 „	2·91825
2838½ Brac- cias de Panno }	„ 1 Miglio „	Yards. { 1808·448 or Miles. 1·0275 }	{ 1653·675
4 Miglia }	{ 1 Post Miglio } „	4·11 „	{ 6614·700 or Kilometres. 6·6147

The Braccio de Panno is also subdivided into 12 Crazie, and the Soldo into 3 Quatrini of 4 Denari. The Crazie is 5 Quatrini or 20 Denari, and is equal to 2·48153 English Inches. The Braccio, used by Architects and Surveyors, is a little shorter than the Braccio de Panno. It is equal to 1·8 English Foot.

## MEASURES OF SURFACE.

<i>Tuscan value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Sqr. Braccio =	Square Yards. ·4073928 =	Square Metres. ·340646
100 Sqr. Braccias }	= 1 Tavolo „	40·7392848 „	34·0646
100 Ta- volos }	„ 1 Quadrato „	{ 4073·92848 or Acres. ·84178 }	{ 3406·46 or Acres. 34·0046

100 Quadratos are equal to 84·178 English Acres.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Tuscan value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Pinta.	Litres.
	1 Bassolo =	·3352	= ·190344
2 Bassoli	= 1 Quartucco „	·6704	„ ·380689
2 Quartucci	„ 1 Mazetta „	1·3408	„ ·761379
2 Mezette	„ 1 Mettadella „	2·6816	„ 1·522679
4 Metadelle or 8 Mezette	} „ 1 Quarto „	10·7264	„ 6·090715
		Imperial Bushels.	
2 Quarti	„ 1 Mina „	·33520	„ 12·181431
2 Mine	„ 1 Stajo „	·67040	„ 24·362862
3 Staja	„ 1 Sacco „	2·01120	„ 73·088586
8 Sacci	„ 1 Moggio „	{ 16·08960 or Imp. Quarters. } 2·01120	„ 584·708688

## MEASURES OF CAPACITY FOR LIQUIDS—(WINE, &amp;c).

<i>Tuscan value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Pinta.	Litres.
	1 Quartucco =	·50164	= ·2849
2 Quartucci	= 1 Mezzetta „	1·00328	„ ·5698
2 Mezzette	„ 1 Boccale „	2·00656	„ 1·1396
		Imperial Gallons.	
2 Boccali	„ 1 Fiasco „	·50164	„ 2·2792
20 Fiasci	„ 1 Barile „	10·03289	„ 45·584
9½ Barile	„ 1 Pipa „	96·9846	„ 440·889

## WEIGHTS.

<i>Tuscan value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
	1 Grano =	·75804	= ·0491235
24 Grani	= 1 Denaro „	18·193	„ 1·178965
3 Denari	„ 1 Dramma „	54·581	„ 3·536895
8 Dramme	„ 1 Oncia „	436·54	„ 28·295166
		lbs. av.	
12 Once	„ 1 Libbra „	·74855	„ 339·542
		Killogrammes.	
100 Libbre	„ 1 Cantaro „	74·855	„ 33·954
10 Cantaros	„ 1 Migliajo „	748·55	„ 339·54

In round numbers the Tuscan Libbra is nearly 12 oz. av. It is nearly 11 oz. Troy.



The *Medicinal Weights* are, the Libbra of 12 Once; the Oncia of 8 Dramme; the Dramma of 3 Scrupoli; the Scrupolo of 24 Grani; and the Grano. Thus, the *Medicinal Libbra* contains 6912 Tuscan Grani. The Libbra of Lucca is only a few grains heavier than the Tuscan Libbra.

### LOMBARDY.

*Length.*—The Metro or Braccio of 10 Palmi, each of 10 Diti, each of 10 Atomi = 39·37079 English Inches or 1 Metre. The Miglio of 1000 Metri = 1093·68 English Yards or 1 Kilometre. *Surface.*—The Tornatura of 100 Square Palmi = 119·6083 English Square Yards. It is the Italian Ara or the French Are. *Capacity.*—The Pinta of 10 Coppi = 1·7608 British Imperial Pint. It is the Italian Litro or the French Litre. The Mina of 10 Pinti is the Italian Decalitre or French Decalitre, and the Soma of 10 Mine is the Italian Hectolitre or French Hectolitre. The Mina = 2·2096, and the Soma 22·096 British Imperial Gallons. *Weights.*—Libbra Metrica of 10 Oncie, each of 10 Grossi, each of 10 Denari, each of 10 Grani, is the Italian Chilogramma or the French Kilogramme, and = 2·20466 lbs. av. English. The Rubbo of 10, and the Quintale of 100 Libbri.

### SARDINIA — (ISLAND OF).

#### MEASURES OF LENGTH.

<i>Sardinian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metres.
	1 Palmo	= 10·33483	= ·2625
		Yards.	
8 Palmi	= 1 Canna	„ 2·296629	„ 2·1
12 Palmi	„ 1 Trabucco	„ 3·444944	„ 3·15

The Surface Measures are the Squares of the Measures of Length.

#### MEASURES OF CAPACITY FOR DRY GOODS.

<i>Sardinian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Gallons.	Litres.
	1 Quarte	= 5·411626	= 24·5875
2 Quarte	= 1 Starello	„ 10·823253	„ 49·175

## MEASURES OF CAPACITY FOR LIQUIDS.

(WINE, BRANDY, &amp;c.)

<i>Sardinian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pints.	<i>Metric value.</i> Litres.
	1 Metzze	= .88507	= .50268
2 Metzze	= 1 Pinte	„ 1.77014	„ 1.00532
5 Pinte	„ 1 Quartiere	„ 8.8507	„ 5.0268

The Quartana of 12 Quartucci = 7.895248 Imperial Pints English, or 4.2 Litres.

## MEASURES OF CAPACITY FOR LIQUIDS—(OIL).

<i>Sardinian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Gallons.	<i>Metric value.</i> Litres.
	1 Misuro	= .08851	= .175
2 Misuri	= 1 Quartucco	„ .07708	„ .350
12 Quartucci	„ 1 Quartana	„ .924405	„ 4.2
4 Quartane	„ 1 Giarro	„ 3.69762	„ 16.8
2 Giarri	„ 1 Barile	„ 7.39524	„ 33.6

## WEIGHTS.

<i>Sardinian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains. lbs. av.	<i>Metric value.</i> Grammes. Kilogrammes.
	1 Sediceno	= 32.61455	= 2.1134
2 Sediceni	= 1 Ottavo	„ 65.2291	„ 4.2268
2 Ottavi	„ 1 Quarto	„ 130.4582	„ 8.4536
4 Quarti	„ 1 Oncia	„ .0745475	„ 33.8141
12 Once	„ 1 Libbra	„ .89457	„ 405.77
100 Libbro	„ 1 Cantaro	„ 89.457	„ 40.577

## MALTA.

## MEASURES OF LENGTH.

<i>Maltese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Inches. Yards.	<i>Metric value.</i> Metres.
	1 Piede	= 11½	= .28368
	1 Oncia	„ .856314	„ .02175
12 Once	= 1 Palmo	„ 10.275776	„ .261
8 Palmi	„ 1 Canna	„ 2.2335	„ 2.088

The following approximate equivalents are generally assumed in Commercial dealings.

- 1 Palmo = 10½ English Inches = .33865 French Mètre.  
 1 Tratto = 24 English Inches = .609576 French Mètre.  
 1 Measure = 42 English Inches = 1.066758 French Mètre.  
 1 Canna = 84 English Inches = 2.133516 French Mètre.  
 7 Canne = 48 English Feet = 14.630112 French Mètre.  
 120 Palmi = 108 English Feet = 31.393782 French Mètre.

½ In round numbers 3½ Palmi are reckoned equal to 1 English Yard; or 2½ English Yards are equal to 1 Canna.

#### MEASURES OF SURFACE.

<i>Maltese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Square Feet.	<i>Metric value.</i> Square Metres.
	1 Sq. Poltice =	.00509218 =	.000473
144 Sq. Poltice =	1 Sq. Palmo ,,	.73327483 ,,	.068121
64 Sq. Palmi ,,	1 Sq. Canna ,,	46.929589 ,,	4.359744
4½ Sq. Canne ,,	1 Misura ,,	25.0291142 ,,	20.926771
10 Misuras ,,	1 Mondello ,,	250.291142 ,,	209.26771
6 Mondelli ,,	1 Tumulo ,,	1501.746852 ,,	12.5560626
16 Tumuli ,,	1 Salma ,,	4.964 ,,	2.008970016

543 Square Palmi are usually reckoned equal to 400 English Square Feet, and 16 Salmi or 256 Tumuli to 71 English Acres.

#### CUBIC MEASURES.

The following approximate equivalents are generally assumed in Commercial dealings :—

- 1 Cubic Tratto = 8 English Cubic Feet.  
 144 Cubic Palmi = 96 English Cubic Feet.  
 1 Cubic Canna = 843 English Cubic Feet.

#### MEASURES OF CAPACITY FOR DRY GOODS.

<i>Maltese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Bushels.	<i>Metric value.</i> Litres.
	1 Mondello	= .082679 =	3.0052
6 Mondelli =	1 Tummolo	,, .496077 ,,	18.03125
16 Tummoli ,,	1 Salma ("Struck")	,, 7.987237 ,,	288.5

The "heaped" Salma, which is used in measuring Beans, Herbs, Lentils, Indian Corn, Linseed, Hempseed, Canary Seed, Salt, and Charcoal, is about 16 per cent. greater than the Salma of "struck" measure. It is, therefore, equal to about 334·66 Litres, or 9·20719492 English Imperial Bushels.

The following approximate equivalents are generally assumed in all Commercial dealings :—

100 Tummoli (heaped)	}	=	57 British Impl. Bushels =	=	French Litres.
					254·435272
400 Tummoli (struck)	}	"	197	"	Hectolitres.
					7160·525512
35 Salmi (heaped)	}	"	40	"	Quarters
					116·313267
203 Salmi (struck)	}	"	200	"	
					581·566336

#### MEASURES OF CAPACITY FOR LIQUIDS.\*

<i>Maltese value.</i>		<i>Systematic name.</i>		<i>English value.</i>		<i>Metric value.</i>
4 Gills	=	1 Pint	=	Imperial Pint. ·833111	=	Litres. ·473125
2 Pints	"	1 Quart	"	Imperial Gallon. ·208277	"	·94625
4 Quarts	"	1 Gallon	"	·833111	"	3·785

The Maltese Wine Barrel is equal to 9·35 British Imperial Gallons, or 42·027 Litres.

In Oil measure the unit is the *Cafico*, equal to 4½ English Imperial Gallons, or 19·87773 Litres.

A Barrile of Oil of 2 *Cafici* is equal to 8½ English Imperial Gallons, or 39·755461 Litres.

6 Wine Gallons are equal to 5 English Imperial Gallons = 22·717435 French Litres.

1 *Cafico* of Oil is equal to 4½ English Imperial Gallons = 20·445691 French Litres.

130 Barrile of Wine are equal to 1216 English Imperial Gallons = 5524·880192 French Litres.

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\* These are the Old British Wine Measures that were superseded by the British Imperial Measures. The Gallon contained 231 Cubic Inches. Of such Gallons, 10 made an Anker; 18 a Rundlet; 42 a Tierce; 63 a Hoghead; 84 a Puncheon; 126 a Pipe or Butt; and 252 a Tun.

## WEIGHTS.

<i>Maltese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
	1 Grano* =	7069 =	045805
18 Grani =	1 Crapeso* „	127239 „	82449
2 Crapesi „	1 Parto* „	254479 „	164898
16 Parti „	1 Oncia* „	40716 „	263838
12 Once „	1 Libbra* „	4886 „	316606
2½ Libbra „	1 Rotolo† „	1745 lbs. Av. „	791515
100 Rotoli „	1 Cantaro† „	174½ „	791515 Kilogrammes.
114 Rotoli „	1 Quintal „	199 „	932326

The following approximate equivalents are generally assumed in Commercial dealings:—

14 English ounces av.	=	15 Maltese Oncie	=	3968987 French Grammes.
28 „ „	„	1 Rotolo	„	791515
7 „ lbs.	„	4 Rotoli	„	3175147 Kilogrammes.
112 „ „	„	64 Rotoli	„	50802416
175 „ „	„	1 Cantaro	„	7937868
199 „ „	„	1 Quintal	„	90264907
5 „ Tons	„	64 Cantari	„	5080241602

The Rotolo and half-Rotolo are the Weights used in all small dealings.

## TURKEY.

## MEASURES OF LENGTH.

<i>Turkish value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metres.
	1 Kerát	= 1½	= 0285744
2½ Keráts =	1 Pike or Drá	„ 27	„ 6857876
	1 Berri	„ 1088636 Miles.	„ 1671492 Kilometres.
8 Berri „	1 Agatsch or Forsang	„ 311591	„ 501447

\* Weights for Gold, Silver, and Precious Stones.

† Commercial Weights.

There are in common use three kinds of Pike, viz. the *Drâ*, given in the table, and equal to  $\frac{1}{4}$  of an English Yard; the greater Pike called the *Halebi* or *Archim* (used by Surveyors) = 27·9 English Inches, or ·7086472 Mètre; and the little Pike or *Endassé* = 25·68816 English Inches, or ·6528 Mètre.

The Reed used by Land Surveyors is  $5\frac{1}{2}$  Halebis. The *Halebi* is used for Silk and Woollen goods, and the *Endassé* for Cotton goods and Carpets. There are also the *Shibher* or *Span*, and the *Fitneh* or span of the thumb and Yorefinger, and the *Kud-dun* or pace.

In several parts of the Ottoman Empire, Itinerary distances are estimated by the time taken to walk them. Thus there is the "hour" which varies from  $2\frac{1}{4}$  to 4 miles. But this mode of reckoning distances is not peculiar to Turkey or the East. It is very usual to speak of a place as being *so many minutes or hours distant*.

#### MEASURES OF SURFACE.

Turkish value.	Systematic name.	English value. Square Feet.	Metric value. Square Metres.
256 Sqr. Kerâts	= 1 Sqr. Pike	= 5·405625	= ·50218085
80½ Sqr. Pikes	„ 1 Sqr. Reed „	18·168905	„ 15·19072088

The general Measure for Land is the *Feddan*, an indefinite measure signifying as much as a yoke of oxen can plough in one day. On the large plains a *Feddan* is used to express as much land as 4 yoke of oxen can plough in one day.

#### MEASURES OF CAPACITY FOR DRY GOODS.

Turkish value.	Systematic name.	English value. Imperial Gallon.	Metric value. Litres.
900 Dirhems or } 12 Okiejehs }	= 1 Rottol	= ·8528145	= 1·60318
5½ Rottols	„ 1 Sa	„ ·24256	„ 8·8175
2 Sa	„ 1 Jubbeh	„ ·48512	„ 17·685
2 Jubbehs	„ 1 Killow	„ ·97024	„ 35·27
4 Killows	„ 1 Fortin	„ 3·88096	„ 141·08

100 Killows are equal to 12·128 British Imperial Quarters, or 35·266 Hectolitres. The Killow is the chief measure for Grain, the lower measures being definite weights rather than measures. By the law of 17th November, 1841, the Killow of Constantinople was made the only legal Killow of the whole Empire, and the Killow of Smyrna and that of Salonica were abolished. 2 Killows of Smyrna, or 1 of Salonica were equal to 3 of Constantinople nearly.

## MEASURES OF CAPACITY FOR LIQUIDS.

Turkish value.	Systematic name.	English value. Imperial Pints.	Metric value. Litres.
	1 Okiejeh	= .20945	= .1190
5½ Okiejehs	= 1 Oka	„ 1.151975	„ .6545
12 Okiejehs	„ 1 Rottol	„ 2.5184	„ 1.4280
8 Oke	„ 1 Almud	„ 1.151975	„ 5.234
100 Rottols	„ 1 Cantar	„ 31.417	„ 142.80

The Liquid Measures, like the Measures of Dry Capacity, take their names from Weights; they are in fact vessels which contain definite weights of water at a given temperature. Thus, for instance, the Oka is a measure holding an Oka-weight of pure water at a fixed temperature. It is used as a Measure of Capacity for all kinds of liquids throughout the empire. For Oil the Tarré is in some places 16, and others 28 Oke.

## WEIGHTS.

Turkish value.	Systematic name.	English value. lb. av.	Metric value. Grammes. Kilogrammes.
	1 Dirhem	= .0070854	= 3.21885
100 Dirhems	= 1 Okiejeh	„ .708548	„ 321.885
4 Okiejehs	„ 1 Oke	„ 2.83418	„ 1.28554
44 Okes or 100 Rottolos }	„ 1 Cantar	„ 124.70392	„ 565.6878

The Rottolo is equal to 1.247089 lb. av. English, or 565.6878 Grammes.

## WEIGHTS FOR GOLD, SILVER, AND PRECIOUS STONES.

The unit of these Weights is the Chequee or Chekey, which is the fourth-part of an Oka, and is equal to about 4950 Troy Grains, or 11.816 oz. av. The Chequee or Chekey is divided into 100 Dirhems, each of 16 Karas, and each Kara of 4 Grains, as follows:—

Turkish value.	Systematic name.	English value. Troy Grains.	Metric value. Grammes.
	1 Grain	= .7707	= .04904
4 Grains	= 1 Kara	„ 3.0828	„ .19978
16 Karas	„ 1 Dirhem	„ 49.325	„ 3.1962
100 Dirhems	„ 1 Chequee or Chekey	„ 4932.5	„ 319.62

## CANDIA.

In the Island of Candia, which forms a Pashalic of Turkey, the denominations of Weights and Measures are nearly the same as in Turkey, with some slight local difference in value.

## MEASURES OF LENGTH.

The Pike or Drâ is equal to  $25\frac{1}{2}$  English Inches, or 70833 Mètres.

## MEASURES OF SURFACE.

The Denum is equal to about 40 Square Yards, or 33·44388 Square Mètres.

## MEASURES OF CAPACITY FOR LIQUIDS.

Mistach for Oil is equal to about 3 British Imperial Gallons, or about 13·631 Litres.

The Mistach for Wine varies from 3 to 5 Gallons, or from 13·631 to 22·717 Litres.

## MEASURES OF CAPACITY FOR DRY GOODS.

The Carza is equal to about 4·19 British Imperial Bushels, or 152·297684 Litres.

## WEIGHTS.

The Oka is equal to about  $2\frac{1}{2}$  lbs. av., or 801·69 Grammes. The Cantar of 44 Okes is equal to about 126 lbs. av. English, or 35·27436 Kilogrammes.

## GREECE.

## ROYAL\* MEASURES OF LENGTH.

<i>Greek value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
$\frac{1}{1000}$ th of the Pecheus	= 1 Gramme	= $\frac{1}{1000}$ Inch = 0·03937079	= 1 Millimètre
10 Gramma	„ 1 Daktylas	„ 0·3937079	„ 1 Centimètre
10 Daktylor	„ 1 Palame	„ 3·937079	„ 1 Décimètre
10 Palamai	„ 1 Pecheus	„ 39·37079	„ 1 Mètre.

\* These Weights and Measures are called "Royal" to distinguish them from those of Constantinople, which were formerly used in Greece. The "Royal Weights and Measures" were introduced in accordance with an ordinance dated 26th October, 1836. Tablets showing the difference between the new and old systems were put up at all workshops and public markets during the year following the introduction of the new system.



## ROYAL MEASURES OF DISTANCE.

<i>Greek value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
1000 Pecheis = 1 Stadion	=	1093·633 <small>Yards.</small>	= 1 Kilomètre
10 Stadia	„ 1 Skoinis „	<small>Miles.</small> 6·2138	„ 1 Myriamètre

## ROYAL MEASURES OF SURFACE.

<i>Greek value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>Square Yards.</small>	
	1 Sq. Pecheis =	1·196033321	= 1 Sq. Mètre
100 Sq. Pecheis = 1 Stremma	„	119·603321	„ 1 Are

ROYAL MEASURES OF CAPACITY FOR DRY GOODS  
AND LIQUIDS.

<i>Greek value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
$\frac{1}{1000}$ th of a Cubic Pecheus	} = 1 Kybos	Imperial Pinta.	= 1 Millilitre
		·00176077	
10 Kyboi	„ 1 Mystron „	·01760773	„ 1 Centilitre
10 Mystra	„ 1 Kotyle „	·176077339	„ 1 Décilitre
10 Kotylai	„ 1 Litra „	1·760773395	„ 1 Litre
100 Litrai	„ 1 Koilon „	<small>Imperial Gallons.</small> 22·00986744	„ 1 Hectolitre

The Koilon is a measure whose capacity is that of a hollow cube described on the Palame, or  $\frac{1}{10}$ th of the Pecheus.

## WEIGHTS.

## I.—GOLD, SILVER, AND PRECIOUS STONES.

<i>Greek value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>Troy Grains.</small>	
	1 Kokkos =	·154323488	= 1 Centigramme
10 Kokkoi = 1 Obolos	„	1·54323488	„ 1 Decigramme
10 Oboloi „ 1 Drachmé	„	15·4323488	„ 1 Gramme

## II.—COMMERCIAL.

<i>Greek value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>lbs. av.</small>	
1500 Drachmai = 1 Mna	=	3·80699	= 1½ Kilogramme

## III.—WEIGHTS FOR GREAT BULKS.

<i>Greek value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		lbs. av.	
100 Mnái	= 1 Tolanton	= 330·699	= 1½ Quintal
10 Tolanta	„ 1 Tonos	„ 29·52669	„ 1½ Tonneaux
		Cwt.	

The unit of weight is the Drachm6. It is equal to the specific weight of the Kybos, that is to the weight of a Kybos (1000th part of a Litra) of pure water.

## APOTHECARIES' WEIGHTS.

<i>Apothecaries value.</i>	<i>Systematic name.</i>	<i>Royal Weight.</i>	<i>English value.</i>
		Royal Drachmal.	Troy Grains.
	1 Kokkos =	·0625 =	·9645218
20 Kokkoi	= 1 Sitarion „	1·25 „	19·290436
3 Sitaria	„ 1 Drachm6 „	3·75 „	57·871308
8 Drachmai	„ 1 Ouggia „	30 „	462·970464
12 Ouggiai	„ 1 Litra „	360 „	5555·645568

The difference between the Weights and Measures given in the above tables, and those of Constantinople, which were in use in Greece until October, 1836, is as follows:—

## I.—LENGTH.

The Royal Pecheus is equal to 1·5432 of the little Pecheus of Constantinople.

The little Pecheus of Constantinople is equal to ·648 of the Royal Pecheus, and the great Pecheus of Constantinople is equal to ·669 of the Royal Pecheus.

The old Pecheus used by Surveyors, Builders, and Carpenters, is equal to ·75 of the Royal Pecheus.

One Standard Measure exists throughout the whole of the kingdom; this consists of a rod of steel or brass, upon which is shown the length of the Royal Pecheus.

## II.—SURFACE.

The Royal Square Pecheus is equal to 2·381 Square Pecheis (Pikes) of Constantinople.

The Royal Stremma is equal to 238·1 Square Pecheis of Constantinople, or to ·787 of the old Peloponnesian Stremma, or to 1778 of the old Square Pecheis used by Surveyors and Builders, each of such old Square Pecheis (Surveyors) being equal to ·5625 of the Royal Square Pecheus.

The old Peloponnesian Stremma of 3025 Square Pecheis is equal to 1·27 of the Royal Stremma.

## III.—CAPACITY.

The Royal\* Litra is equal to .02015 of the old Koilon. The old Koilon is equal to 33.16 Litra.

## IV.—WEIGHTS.

The Royal Mna is equal to 1.1719 of an Oka, (which is equal to 468½ old Dramia). The Oka is equal to .8533 of the Mna.

## THE IONIAN ISLANDS.

(CORFU, SANTA MAURA, CEPHALONIA, ZANTE, CERIGO, ITHACA, AND PAXO.)

As the Ionian Islands now (1867) form a part of the Kingdom of Greece, it is probable that the Greek system of Weights and Measures (see Greece) will soon become the only legal one. While the Islands were under the protection of Great Britain (1815 to 1864) the British Weights and Measures (see pp. 106—117), with Italian names, were those in use.

The *Piede* was the Foot; the *Jarda* was the Imperial Yard; the *Carnaco* was the Pole; the *Stadio* was the Furlong; the *Gallone* was the Imperial Gallon; the *Chilo* was the Bushel; the *Dicotilo* was the Imperial Pint; the *Libra Grossa* was the lb. Avoirdupois; the *Libra Sottile* was the lb. Troy; and the *Tolonto* was 100 lbs. av.†

## MEASURES OF LENGTH.

<i>Ionian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 <i>Piede</i>	= 1 Foot	= .304794
3 <i>Piede</i>	= 1 <i>Jarda</i>	„ 1 Yard	„ .914383
5½ <i>Jarda</i>	„ 1 <i>Carnaco</i>	„ { 1 Rod, Pole, or Perch }	„ 5.02911
40 <i>Carnaco</i>	„ 1 <i>Stadio</i>	„ 1 Chain.	„ 201.16436
8 <i>Stadia</i>	„ 1 <i>Miglio</i>	„ 1 Mile	„ 1.610931492

\* Litra is equal to ½ of an Oka, and 1½ Litral is equal to 1 Oka.

† Previous to the period of British protection the Measures were the Zante Cloth Braccio of 217.18 Inches, and Silk Braccio equal to 25.87 Inches; the Zante Barile equal 14.68 British Imperial Gallons; the Corfu Barile equal to 15 British Imperial Gallons; the Corfu Moggio, (Grain measurement) of 8 Misure equal to 4.68 British Imperial Bushels; the Moggio, (Land Measure) of 8 Misure or 24 Zappade equal to 2 Acres 1 Rood 24 Perches English; the Quintal of 44 Okes equal to 135.15 lbs. Avoirdupois; and 10 Okes equal to 28 lbs. av.

## MEASURES OF CAPACITY.

<i>Ionian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Dicotilo =	1 Imperial Pint =	·56793 Litres.
8 Dicotili =	1 Gallone	" 1 " Gallon	" 4·543487
8 Galloni =	1 Chilo	" 1 " Bushel	" 36·847896
2 Chilos =	1 Barile	" 2 " Bushels	" 72·695792

## WEIGHTS.

<i>Ionian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Libbra Grossa =	1 lbs. av. =	453·5925 Grammes.
100 Libbre =	{ 1 Centinajo or Talanto }	" 100 "	" 45·35925 Kilogrammes.
10 Centinajo =	1 Miglio	" 1000 "	" 453·5925

## CHINA.

## MEASURES OF LENGTH.

<i>Chinese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Fun*	= 1·41 Inches.	= 0·035813 Metres.
10 Fun =	1 Tsun	" 14·1	" 0·35813
10 Tsun =	1 Chih	" 141 Feet.	" 35·8133
10 Chih =	1 Cháng	" 117½	" 3·58133
10 Cháng =	1 Yin	" 117½	" 35·8133

In the tariff settled by treaty between Great Britain and China, the Chih equal to  $14\frac{1}{2}$  English Inches (the Canton Customs' Chih) has been adopted as the legal standard. It is the legal measure at all the Ports of trade; its use is becoming more general, and it may be ultimately adopted as the universal standard of length. At present, however, the length of the Chih varies at different places and in different trades at the same place.

Tradespeople use two Chih sticks, varying in length from  $\frac{1}{4}$ th to  $\frac{1}{3}$ rd of an inch, the longer for wholesale, and the shorter for retail transactions.

Decimals are used to denote subdivisions of the Chih, and the *Chang* is the longest measure for articles.

The length of the *Chang*, or any other multiple of the Chih, varies with the length of the Chih chosen as the unit. Thus, the *Chang* of the treaty (above mentioned) is equal to 141 English Inches, or 3·58133 Metres. At Shanghai the *Chang* varies from 125 to 129 Inches, or from 317495 to 327654 Mètre.

In the North of China (Pekin, Tientsin, &c.), the Chih in most general use are the Carpenters' and the Mercers' Chih,

\* The length of a Millet Seed with the ends dressed off.

equal respectively to 12·85 and 13·7 English Inches, or to ·818684, and ·847978 Mètre.

The following table shows the length of the Chih in different dynasties :

Dynasty.	Date.	Chih.	English value. Inches.	Metric value. Metre.
Hwangti*	B.C. 2697—1766	Chih	10·0592	·255499
Shang ..	B.C. 1766—1122	Chih	12·8541	·328065
Chan ..	B.C. 1122— 249	Chih	8·04789	·204400
Han ..	B.C. 202—A.D. 221	Chih	11·17717	·288894
Tang ..	A.D. 618— 907	Long Chih	12·58415	·319681
Tang ..	A.D. 618— 907	Short Chih	10·05924	·255500
Sung ..	A.D. 960—1280	Chih	10·05924	·255500
Ming ..	A.D. 1368—1644	Chain Chih	13·422	·340912
Ming ..	A.D. 1368—1644	Tong-Chih	12·8754	·327029
Ming ..	A.D. 1368—1644	Kish-Chih	12·58415	·319681
Tsing ..	1644	Present Official Chih†	12·58415	·319681

\* The Chinese call him the grandson of Noah, and ascribe to him the invention of the Mariners Compass.

† But the standards themselves are not uniform, for a standard *Chih* received at Shanghai in 1844, was only equal to 12·5288 inches.

The variations in the length of the Chih at different places and in different trades will be seen from the following tables:—

## PEKIN.

	<i>English value.</i> Inches.	<i>Metric value.</i> Metres.
Tailors' Chih in the South part of the City ..	13·58	==·844925
Chih used by Traders in Silk .. ..	13·46	„·341877
Chih used by Tailors in the North part of the City,	13·42	„·340861
Tailors' Chih, according to Du Halde ..	13·216	„·235680
Chih of the Tribunal of Mathematics ..	13·118	„·333191
Land Surveyors' Chih, <i>liang-ti-chih</i> ..	12·875	„·327019
Common Chih ..	12·68	„·322066
Registrar of Lands Chih,	12·598	„·319983
Architects', Traders', &c. Chih .. ..	12·585	„·319653
Chih of the Palace,	12·468	„·316681
Chih of Imperial Statistics .. ..	12·40	„·314954
Chih of the Board of Public Works ..	12·34	„·313430
Chih used in the Works of the Palace ..	12·17	„·309112

## AMOY.

Tailors', Painters', and Mercers' Chih ..	12·08 to 12·24	=·306816 to ·310890
Common Chih (or foot rule) .. ..	12·1	„·307334
Custom House Chih, for Junks .. ..	11·832	„·300527
Carpenters' Chih in 1680,	11·832	„·300527
Goldsmiths' Chih in 1680,	11·26	„·285998
Carvers' Chih ..	11·674	„·296511

## CANTON.

	English value. Inches.	Metric value. Metres.
Tailors' Chih, called <i>pai-t sien-chih</i> ..	14·685	—·372992
Mercers' Chih, for whole-sale purchases ..	14·66 to 14·724	„·372859 to ·378982
Mercers' Chih, for retail sales ..	14·37 to 14·56	„·364991 to ·369817
Merchants' Chih in 1751, by Toreen ..	14·212	„·860978
Merchants' Chih in 1751, by Osbeck ..	14·64	„·371849
Architects' Chih ..	12·7	„·322574

## CHANG CHAU (near Amoy).

Land Measure Chih,	14·085	—·356482
Velvet Weavers' Chih, or <i>Ta Chih</i> ..	13·75	„·849243
Mercers' & Cloth Dealers' Chih, or <i>Chang-tsai-Chih</i> ..	12·24	„·810890
Tailors' Chih, or <i>Hia-tsai-Chih</i> ..	12·10	„·807834
Stone Cutters' & Masons' Chih, or <i>Lü-pän-Chih</i> ,	11·793	„·299536
Dyers' Chih ..	11·674	„·296514
Junk Builders' Chih,	11·888	„·289249
Retailer of Cloth & Silks' Chih ..	11 to 11·1	„·279894 to ·281934

## CHIHMA (between Chang Chau and Amoy).

Custom House Chih,	12·71	—·322828
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## CHINHAI (near Ningho).

Tailors' & Traders' Chih,	13·7	—·847973
Artisans' Chih, or <i>Fuh-Kien-i-Chih</i> ..	12·44	„·815970
Stone Cutters', or <i>Lu-pän-Chih</i> ..	10·9	„·276854

## FUH CHAU.

	English value. Inches.	Metric value. Metres.
The <i>Mong King Chih</i> ,	16·85	=·427982
Tailors' Chih, or <i>Tsai-fung Chih</i> ..	15	„·380993
The King Chih ..	13·4 to 13·7	„·340353 to ·347973
The Kian Chih ..	12·75	„·323844
Shoemakers' Chih, or <i>Hwa-tien-Chih</i> ..	12·24 to 12·3	„·310890 to ·312420
Silk Dealers' Chih..	12	„·304794
Cloth Dealers' Chih, or <i>Kang-Kien-Chih</i>	11·83 to 11·93	„·300476 to ·303016
Stone Cutters' Chih, or <i>Lú-pán-Chih</i> ..	11·79 to 11·83	„·299460 to ·300476
The Tien Chih ..	11·18	„·283966
The Tang-tien-Chih	10·748 to 11·55	„·272994 to ·293364

## MACAO.

Tailors' Chih ..	14·64 to 14·685	=·371849 to ·372992
Silk Mercers' Chih..	14·66	„·372359
Interior Customs' transit duty Chih ..	14·586	„·370477
Traders' Chih for Retail	14·212 to 14·4	„·360978 to ·365753
Small Dealers' Chih, or <i>Kin-wú-Chih</i> ..	13·94	„·354069
Artisans' and Masons' Chih ..	13·46 to 13·94	„·341877 to ·354069
Braziers', Joiners', and Coopers' Chih ..	12·4	„·314954

## MAIMAICHIN.

Chih for purchases	13·976	=·354984
Chih used in sales to Mongols ..	13·779	„·349980
Russian Merchants' Chih (in 1824) ..	13·203	„·335350

## MANILLA.

Chinese Carpenters' Chih	13·818	=·350970
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**NANCHANG, (in Kiang-su.)**

	<i>English value.</i> Inches.	<i>Metric value.</i> Metres.
Traders' Rule . . .	14·45	=·867028

**NANKIN.**

Traders' Rule ..	13·937	=·858998
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**NINGHO.**

Chih, called <i>Ta-yih-tsun-Chih</i> (11 tsun) ..	15·070	=·892999
Chih, called <i>Ta-wu-fun-Chih</i> (10½ tsun) ..	14·37	„·864991
Tailors' Chih, or <i>Tsai-fung-Chih</i> { 1846	14·098	„·858082
{ 1858	13·75	„·849248
Fur, Cloth, and Felt Dealers' Chih ..	13·7 to 13·92	„·847973 to ·858561
Silk-dealers' Chih, or <i>Shi-chang-mai mai Chih</i> , the Market Chih	13·75	„·849248
Common Chih, the <i>Kwan-tsi-Chih</i> ..	13·7	„·847973
Statute Rule in Customs, or <i>Pü-pän-Chih</i> ..	12·7	„·822574
Ship Builders' Chih	11·93	„·808016
Stone Cutters' Chih, or <i>Lü-pän-Chih</i> ..	10·95 to 10·99	„·278124 to ·279140
Carpenters' Chih ..	9·92	„·251963

**SHANGHAI:**

Junk Builders' Rule, <i>Tsungming-i-Chih</i>	15·69 to 15·769	=·898518 to ·400525
Custom House Chih, or <i>Haikwan Chih</i> ..	14·098	„·858082
Tailors' Chih, or <i>Shanghai-i-tsai-Chih</i> ..	13·85 to 14·05	„·851783 to ·856863
Land Measure Chih of Board of Revenue	13·181	„·884791
Artisans' Chih, or <i>Fuh-Kien-i-Chih</i> (8 tsun)	12·569	„·819246
Carpenters' Chih ..	11·14	„·282950
Masons' Chih, or <i>Lü-pän-Chih</i> .. ..	10·9 to 11·08	„·276854 to ·281426

## SHANSI.

	<i>English value.</i> Inches.	<i>Metric value.</i> Metres.
Tailors' Chih ..	14·55	=·369563

## TIENTSIN.

Carpenters' common Chih	12·85	=·313684
Mercers' Silk and Cloth Chih .. ..	13·7	„·347973

## TINGHAI.

Traders' or Tailors' Chih	13·7	=·347973
Joiners' Chih ..	10·9	„·276854
Masons' Chih ..	10·63	„·269997

1 Yard English = at Canton, 2 Chih 4 Tsun ; at Shanghai, 2 Chih 5 Tsun ; by the Treaty, 2 Chih 5 Tsun 5·5 Fun.

The *Pih* is a Cloth measure of about 3 Chang, and is equal to 35½ Feet English, or 11·75 Yards nearly.

## MEASURES OF DISTANCE.

<i>Chinese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
5 Fun	= 1 Lí	= Inch. ·486 = Feet.	·01234
10 Lí, or 5 Tsun	„ ½ Chih	„ ·405 „	·12345
10 Half-Chih } or 5 Chih }	„ 1 Pú	„ 4·05 „	1·23451
360 Pú	„ 1 Lí	„ 486·176 Yards.	„ 444·423
250 Lí	„ 1 Tú (or Degree)	„ 69 Miles.	„ 111·1059 Kilometres.

The length of the Lí has varied at different periods from 386 to about 631½ Yards, and its average length may be taken as a little less than ¼ of an English Mile.

Formerly the Lí was divided into 144 Chang of 2 Pú each ; the Pú being subdivided into 6 Chih ; and 192½ Lí went to a Degree. On the reduction of the Pú to 5 Chih, the Lí was divided into 180 Chang or 1800 Chih.

In the survey of the Empire made in 1700, the Chih taken as the unit was equal to 12·1 English Inches, or ·308680 Metre ; and the multiples of the Chih were the Pú of 5 Chih, equal to 5·064 English Feet, or 1·5084 Metrè ; the Chang of 10 Chih

equal to 10·128 Feet English, or 3·10683 Metres; and the Li of 180 Chang and equal to 607·68 English Yards. A Degree contained 200 of these Li. The Degree is also subdivided as follows:—1 Degree = 60 Fun = 8600 Miaú.

At Canton, guard houses are supposed to be placed at intervals of 1 Tang-Sung (or League).

### MEASURES OF SURFACE.

<i>Chinese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Sq. Yards.	<i>Metric value.</i> Area.
25 Sq. Chih = 1 Pú or Kung =		*3·32451 =	*0277964
60 Kung „ 1 Kish „		199·4726 „	1·667785
4 Kish „ 1 Mau „		797·8906 „	6·671141
100 Mau „ 1 King „		79789·06 „	667·1141

The chief land measure is the Mau, and to indicate quantities less than the Mau decimals are used. A Fun of Land contains 24 Kung.

An English Acre is equal to about 6·1 Maus.

At Canton small pieces of land are generally measured by the *Tsing* of 100 Square *Chih*, equal to 16·689 English Square Yards; 160 *Tsing* or 600 Square *Chih* make a Mau, and at this rate a British Statute Acre is equal to 4·847 Mau.

At Macao the Mau = 1015·5266 English Square Yards, and 4·766 such Mau = 1 English Acre.

At Shanghai a Mau =  $\frac{1}{3}$  English Acre, and 6 such Maus = 1 English Acre.

The following are some of the English Acre values, estimated in Maus, at different places in China:—

A British Statute Acre	=	}	4·766 Maus
			5·31 „
			6·08 „
			6·61 „
			6·586 „
			7·205 „

At Tientsin and Shanghai an annual tax of 1500 Cash per Mau is levied by the Chinese Government upon lands sold to foreigners.

\* These values are reckoned at the rate of 18·126 inches for a Chih, or 1·196836 square foot for a square Chih.

## MEASURES OF CAPACITY.

Chinese value.	Systematic name.	English value. Imperial Gallons.	Metric value. Litres.
	1 Koh*	= .0118	= .0518414
5 Koh	= ½ Shing	„ .0565	„ .25670701
10 Koh	„ 1 Shing	„ .118	„ .518414
10 Shing	„ 1 Tau	„ 1.18	„ 5.18414081

The Tau, Shing, Half-Shing, and Koh are the only Measures of Capacity now used in China. They are Measures for Dry Goods.

The size of the Tau differs considerably in different places ; thus, there is the Granary Tau (Tsang Tau), a measure in very general use, which holds 6½ Catties, or about 1.18 British Imperial Gallon. The Market Tau (*Shi-Tau*, or *Shi-Kin-Tau*) is not much used, it is equal to about 1.68 British Imperial Gallon, or 7.40588381 Litres. The Swang Tau containing 13 Catties, and equal to about 2.26 British Imperial Gallons, or 10.26828 Litres. The Shing of Rice is usually considered equal to 1 Catty, but its actual weight varies from 12 to 22 Taels.

At Macao the Shing is a little less than 1 British Imperial Pint.

At Canton, of 2 Shings examined (in 1840), 1 contained 1.72 British Imperial Pint, or .97685 Litre, and the other, .919 British Imperial Pint, or .521988 Litre.

At Shanghai 3 specimens of the Shing were found to contain respectively, 1.85 ; 1.87 ; and 1.83 British Imperial Pint, or 1.05068 ; 1.06204 ; and .7558547 Litre.

For measuring Liquids, such as Spirits and Oil, measures containing definite weights are used ; the most usual sizes are those containing 1, 2, 4, and 8 Taels. There are also large earthen vessels containing 60, 80, and 15 Catties, these are invariably of the same size and contain the same weights of liquids of equal specific gravity.

\* There are the following subdivisions of the Koh, which are however merely nominal, and are not in actual use :—The *Koh* of 2 *Yoh*, the *Yoh* of 5 *Choh*, the *Choh* of 10 *Chau*, the *Chau* of 10 *Tsoh*, the *Tsoh* of 10 *Kwei*, the *Kwei* of 6 *Suh*, and the *Suh* is a grain of millet seed. There are also the following multiples of the Koh, which, like the subdivisions, are purely nominal, and are not in actual use :—The *Yu* of 16 *Tau*, the *Shih* of 10 *Tau*, the *Ping* of 80 *Tau*, and the *Fu* of 6 *Tau* 4 *Shing*. The term *Shih* is the weight of a varying number of Catties.

## WEIGHTS.\*

Chinese value.	Systematic name.	English value.	Metric value.
		Oz. Av.	Grammes.
	1 Léang or Tael	= 1½	= 37.7994
16 Léang	= 1 Kin or Catty	„ 1½	„ 604.787
100 Kin	„ 1 Tan or Pecul	„ 133½	„ 60.4787
		lbs. av.	Kilogrammes.

The Tael is nominally subdivided into 10 Lui, of 10 Shu each, the Shu being the weight of a *shelled* millet seed. There are also some nominal multiples of the *Kin*, namely, the *Yin* of 2 *Kin*, and equal to 2½ lbs. av., or 1.290574 Kilogrammes; the *Kiun* of 30 *Kin*, equal to 40 lbs. av., or 18.14861 Kilogrammes; and the *Shi* of 120 *Kin*, equal to 160 lbs. av., or 72.57444 Kilogrammes. The *Shi* is often used to denote the same weight as the Tan or Pecul, viz., 100 Kin. It is also used in a vague sense to denote a "considerable weight." The subdivisions of the Tael used in weighing Gold, Silver, Pearls, Birds' Nests, Medicines, and such like, are as follows:—

## GOLD AND SILVER WEIGHTS.

Chinese value.	Systematic name.	English value.	Metric value.
		Troy Grains.	Grammes.
	1 Le or Cash	= .5798	= .03779
10 Le or Cash	= 1 Fau or Candorun	„ 5.7984	„ .37799
10 Fau	„ 1 Tsien or Mace	„ 57.984	„ 3.77992
10 Tsien	„ 1 Léang or Tael	„ 579.84	„ 37.7992

## ENGLISH AVOIRDUPOIS WEIGHTS EXPRESSED IN CHINESE COMMERCIAL WEIGHTS.

English.	Chinese.
1 Ounce	= ¼ of a Tael, or 7½ Mace
4 Ounces	„ 3 Taels
1 lb.	„ 12 Taels, or ¾ of a Catty
1 Quarter	„ 21 Catties
1 Cwt.	„ 84 „
1 Ton	„ 16 Peculs 80 Catties

\* There are 8 instruments used by the Chinese in weighing, viz., the Balance; the Detchin or Steelyard (*toh-ching*); and the Money Scales (*le-tang*). The Balance (*tien-ping*) is made of brass of different sizes, to weigh from 200 Taels down to *tenths* of a Grain. It is used for weighing Gold, Silver, Jewellery, Pearls, Medicines, Bird's Nests, and such like precious things. The largest Steelyards will weigh 8 or 9 Peculs. The Money Scales are put up in portable cases for convenience, in testing the weight of Copper or Silver received in payment.

In China Weights, and Measures of Length, and Surface, and Dry Capacity, vary in different parts of the Country. Generally they are greatest in the Southern provinces.

## MEASURES OF TIME.

		1 Miao	=	1 Second
60 Miao	=	1 Fun	,,	1 Minute
15 Fun	,,	1 Keh	,,	15 Minutes
8 Keh	,,	1 Shi-Shin	,,	1 Hour
12 Shi-Shin	,,	1 Jih or Chau-yé	,,	12 Hours
10 Days	,,	1 Sun	,,	1 Decade
		1 Moon	,,	29 or 30 Days
12 or 13 Moons	,,	1 Nien	,,	1 Year

## HONG-KONG.

The British Weights and Measures, and also the Weights and Measures of China are used.

## INDIA.\*

There are no universal standards in the native Indian system of Weights and Measures, and the British Government have not yet defined one, but the whole subject of Weights and Measures has been for some time under consideration, and a revision of existing systems is being proceeded with.

The native or linear Measures have no constant or uniform standard. They are founded upon the native idea of the breadth of a finger or length of a fore-arm. The distance from the elbow to the tip of the middle finger is called a *Hat'h* or *Moolym*. The term *Hat'h* is generally translated Cubit. The average length of the *Hat'h* is 19½ English Inches, or 495291 Mètre. In Benares, Bombay, Calcutta, Lahore, Madras, Mangalore, Seringapatam, and Tellitscherry, its length is 18 English Inches, or 4571915 Mètre. In Hyderabad its length is 35·334 English Inches, or 9815 Mètre. In other places its length is 20 English Inches, or 50799 Mètre.

\* For further information in reference to the Currency, and Weights and Measures of India, the reader is referred to the Appendix, which is a paper drawn up for the author, by W. H. BAYLEY, Esq., of the Madras Civil Service and founded on careful research and practical experience.

to be regulated by weight, but the proposition about new grain measures was not approved, and the Imperial Gallon and its multiples are the only measures made up by the authority of the Government, and in Bengal, no Measures of Capacity for dry goods have yet been defined.

## MEASURES OF LENGTH.

<i>Bengal value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metres.
	1 Jow or Jaub*	= ½	= .00684985
3 Jow	= 1 Ungulee	" ½ "	.01904956
4 Ungulees	" 1 Moot	" 3 "	.076198
12 Ungulees or 3 Moots	} " 1 Big'hath or Span,,	9 "	.288595
2 Big'haths			
2 Hât'h	" 1 Guz	" 1 "	.914383
2 Guz	" 1 Danda or Fathom,,	2 "	1.828766
1000 Dandas	" 1 Coss	" 2000 "	1.828766
4 Coss	" 1 Yojan or Jojun	" 4 $\frac{1}{11}$ "	7.815064

\* A Jaub is 8 grains in length.

† The Hât'h is also divided into 18 Tussoos, each Tussoo being equal to 1½ inch.

In China Weights, and Measures of Length, and Surface, and Dry Capacity, vary in different parts of the Country. Generally

#### INDIA—p. 216.

By "The Indian Weights and Measures of Capacity Act, 1871," which extends to the whole of British India, the "Ser," equal to the French Kilogramme, was constituted the primary standard of weight; and a measure containing one such Ser of water at its maximum density, weighed in a vacuum, was constituted the standard unit of Measures of Capacity.

#### INDIA.\*

There are no universal standards in the native Indian system of Weights and Measures, and the British Government have not yet defined one, but the whole subject of Weights and Measures has been for some time under consideration, and a revision of existing systems is being proceeded with.

The native or linear Measures have no constant or uniform standard. They are founded upon the native idea of the breadth of a finger or length of a fore-arm. The distance from the elbow to the tip of the middle finger is called a *Hat'h* or *Moolym*. The term *Hat'h* is generally translated Cubit. The average length of the *Hat'h* is 19½ English Inches, or ·495291 Mètre. In Benares, Bombay, Calcutta, Lahore, Madras, Mangalore, Seringapatam, and Tellitscherry, its length is 18 English Inches, or ·4571915 Mètre. In Hydrabad its length is 35·334 English inches, or ·9815 Mètre. In other places its length is 20 English inches, or ·50799 Mètre.

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For further information in reference to the Currency, and Weights Measures of India, the reader is referred to the Appendix, which is a ser drawn up for the author, by W. H. BAYLEY, Esq., of the Madras. Service and founded on careful research and practical experience.



The chief unit of linear measures is the Guz. Its length differs very much in different places, varying from 26 to 39½ English Inches; but now, however, since English Measures have become more known, the Hat'h is generally an English Cubit of 18 Inches, and the Guz an English Yard of 36 Inches. In the North-West Provinces the Illahi Guz, used in the Government Surveys, is 33 Inches, and 3 Guz make 1 Bans or Ganteh. 20 Ganteh make 1 Jarib.

## INDIA—(BENGAL).

Generally speaking, the so-called Measures of Capacity take their names from Weights, and are in fact vessels which are supposed to contain, when slightly heaped, definite weights of different substances, such as grain, salt, milk, ghee, (clarified butter), spirits, oil, &c., but this is not universally the case; for instance, in the neighbourhood of Madras, and in some of the Southern districts, the ordinary grain measure, the "Puddee" which varies greatly in different places does not represent a definite weight. In 1886, the Calcutta Chamber of Commerce proposed to the Government the introduction of the British Imperial Gallon for liquids, and of a new measure for grain to be regulated by weight, but the proposition about new grain measures was not approved, and the Imperial Gallon and its multiples are the only measures made up by the authority of the Government, and in Bengal, no Measures of Capacity for dry goods have yet been defined.

## MEASURES OF LENGTH.

<i>Bengal value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metres.
	1 Jow or Jaub*	= ½	= .00684985
3 Jow	= 1 Ungulee	1 ½	.01904986
4 Ungulees	„ 1 Moot	3	.076198
12 Ungulees or 3 Moots	„ 1 Big'hath or Span,	9	.228595
2 Big'haths	„ 1 Hât'h†	18	.457191
2 Hât'h	„ 1 Guz	1	.914883
2 Guz	„ 1 Danda or Fathom,	2	1.828766
1000 Dandas	„ 1 Coss	2000	1.828766
4 Coss	„ 1 Yojan or Jojun	4 ½	7.815064

\* A Jaub is 8 grains in length.

† The Hât'h is also divided into 16 Tussoos, each Tussoo being equal to 1½ inch.

The following denominations of higher multiples of the Bengal Coss are occasionally met with in computation :—

<i>Bengal value.</i>	<i>Systematic name.</i>	<i>English value.</i> Miles.	<i>Metric value.</i> Kilometres.
100 Yojan = 1 Mundul =		454 $\frac{1}{11}$	731·5064
100 Mundul „, 1 Coonduh „		45454 $\frac{1}{11}$	73150·64
100 Coonduh „, 1 Gundah „		4545454 $\frac{1}{11}$	7315064
100 Gundah „, 1 Madiny* „		454545454 $\frac{1}{11}$	731506400

## CLOTH MEASURES.

<i>Bengal value.</i>	<i>Systematic name.</i>	<i>English value.</i> Inches.	<i>Metric value.</i> Metres.
3 Jow or Jaub = 1 Ungulee =		2	·01904956
3 Ungulee „, 1 Gerah „		2 $\frac{1}{2}$	·05714875
8 Gerah „, 1 Hât'h „		18	·457191
2 Hât'h „, 1 Guz „		36	·914383

## MEASURES OF SURFACE.†

The Beegah is the highest unit of Measures of Surface. Its subdivisions are as follows :—

<i>Bengal value.</i>	<i>Systematic name.</i>	<i>English value.</i> Square Feet. Square Yards.	<i>Metric value.</i> Square Metres.
	1 Sq. Hât'h =	2 $\frac{1}{2}$ =	·2090425
4 Sq. Hât'hs = 1 Cowrie		9 „	·836097
4 Cowries „, 1 Gunda		4 „	3·344888
20 Gundas „, 1 Cottah		80 „	66·88776
20 Cottahs „, 1 Beegah		1600 „	133·77552

The Cottah is also subdivided into 16 Chitták 20 Gandeh. The Chitták is equal to 5 English Square Yards, or 4·180485 Square Metres. In Benares the Beegah is equal to 3136 Square Yards, or ·64793 Acre. A Beegah measures on each side 120 Feet. Its area is, therefore, 14,400 Square Feet, or 1600 Square Yards. 3 $\frac{1}{2}$  Beegah = 1 Acre, and 4 Beegah are equal to about 1 Madras Cawney.

\* The circumference of the earth.

† In the native "Indian system, an area is often named after the quantity of seed required to sow it, or the quantity it will produce, and, of course, the actual area differs according to the opinion of the person who makes the estimate."—*Suggestions for a Uniform System of Weights and Measures throughout India.* By W. H. Bayley, Esq., of the Madras Civil Service.

For *Land Measure* in the North-West Provinces, the following measures are used in the Government Surveys :—

## MEASURES OF SURFACE.

<i>Bengal value.</i>	<i>Systematic name.</i>	<i>English value.</i> Inches. Feet. Sq. Feet. Sq. Yards.	<i>Metric value.</i> Sq. Metres. Area.
	1 Guz	= 33	
3 Guz	= 1 Bans or Rod	" 8½	
9 Square Guz	" 1 Square Rod	" 68½	= 6·7199592
400 Square Rods	" 1 Beegah	" 3025	" 26·8479837

## WEIGHTS.

In accordance with Act VII., of 1833, the Tola (or Rupee Weight) of 180 Troy grains, is the unit of weight in all Government, and most mercantile transactions in Bengal. As regards the native Hindoo population, each District has its own weights often founded on no reliable data; but the efforts of the Government to equalize the Weights are steadily introducing uniformity. The legal multiplies of the Tola, or, as they may be called, the "Imperial Weights of India," are as follows :—

<i>Bengal value.</i>	<i>Systematic name.</i>	<i>English value.</i> Grains Troy. lb. Av.	<i>Metric value.</i> Grammes. Kilogrammes.
	1 Tola	= 180	= 11·66382
5 Tolas	= 1 Chitták	" 900	" 58·3191
16 Chittáks	" 1 Seer	" 2½	" 933·1056
5 Seers	" { 1 Passeeree or Punsarie }	" 10½	" 4·665528
8 Passeerees or 40 Seers	" { 1 Imperial or In- dian Maund }	" 82½	" 37·324224

Hence, 350 Tolas = 9lbs. Av.; 35 Seers are exactly equal to 72lbs. Av.; 7 Maunds to 576lbs. Av.; and 49 Maunds to 36cwt. or 1·8 Ton. One cwt. English = 54½ Seers, or 1·361 Maunds, and a Ton = 27·22 Maunds. A Chinese Pecul = 1·62 Maunds.

The old "Factory Maund," adopted by the Bengal Government in A.D. 1787, was exactly ¾cwt. or 74½lbs. Av. The old "Bazaar Maund," (subdivided into 40 Seers,) weighed 72½lbs. Av.

In the interior the Seer varies very considerably. Thus, at Allahabad and Lucknow it is 96 Tolas; at Mirzapoor and Benares it is 84 Tolas; and at Hooghly it is 82 Tolas.

In the Calcutta market there are two Maunds in use, namely, the "Imperial," or Indian Maund = 82½ lbs. av., or 37·324224 Kilogrammes, and the Factory Maund = 74½ lbs. av. or ½ rds cwt. or 33·87 Kilogrammes. 100 Imperial Maunds are nearly equal to 110 Factory Maunds, and 1½ Factory Maunds are equal to 1 cwt. English.

## JEWELLERS' WEIGHTS.

<i>Bengal value.</i>	<i>Systematic name.</i>	<i>English value.</i> Grains Troy.	<i>Metric value.</i> Centigrammes.
4 Punks =	1 Dhan =	¼ =	3·037453
4 Dhan ,,	1 Ruttee ,,	1½ ,,	12·149812
8 Ruttee ,,	1 Masha ,,	15 ,,	97·1985
12 Mashas ,,	1 Tola ,,	180 ,,	11·66382

The subdivisions of the Masha are used in stating the fineness as well as the weight of Gold and Silver. Pure Gold and Silver is said to be 12 Mashas fine. An *Anna* weighs 6½, a Rupee 100, and Gold Mohur 106½ Ruttrees.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Bengal value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pints.	<i>Metric value.</i> Litres.
	1 Chitták =	·122625 =	·069641
4 Chittáks =	1 Powah ,,	·49049 ,,	·278564
4 Powahs ,,	1 Seer ,,	1·96196 ,,	1·114259
5 Seer	1 Palli ,,	Imperial Gallons. 1·226225 ,,	5·571295
40 Seer or 8 Palli,,	1 Maund ,,	9·8098 ,,	44·570360

The Chittak is supposed to hold 5 Rupees weight of Oil.

The Grain Measures are supposed to contain, when slightly heaped, a definite weight of grain; but as the Weights differ in every locality so do the Measures. Even Measures bearing the same name by no means indicate the same quantity in every district.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Bengal value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pints.	<i>Metric value.</i> Litres.
	1 Chitták =	·122625 =	·069641
5 Chittáks =	1 Koonki ,,	·613125 ,,	·348205
16 Chittáks ,,	1 Seer ,,	1·96196 ,,	1·114259
4 Koonkis ,,	1 Raik ,,	2·4525 ,,	1·892820
4 Raiks or 5 Seers }	1 Palli ,,	Imperial Bushels. ·153278 ,,	5·571295
20 Pallis	1 Sooli ,,	3·06556 ,,	111·4259
16 Soolis	1 Khahoon ,,	49·04896 ,,	1782·8144

The English and Metric Values given in the tables, are calculated at the rate of 68 Cubic inches, or 1·96196 British Imperial Pint, or 1·114259 Litres to the struck Seer; but if the supposed or nominal value of the struck Seer, viz., 57 Cubic inches be assumed as the basis, then the struck Seer is equal to 1·644588 British Imperial Pint, or ·934011 Litres; and the Chitták = ·102786 British Imperial Pint, or ·0583757 Litre; and the other subdivisions and multiples, in proportion. It must be remembered, however, that only heaped measure is recognised by immemorial custom among the Hindoos; and, therefore, the values given in the table of measures of dry capacity, are less than the actual quantities.

“The most common grain measure, and one which is to some extent known in almost every part of India, is the ‘Seer Measure.’ This is always understood to be a measure which, when heaped, will contain a ‘Seer’ *weight* of rice; or, in some places, instead of rice, a mixture of nine of the most common grains, known as the *Nán-danium* measurement.”\* The nine sorts of grain used in the Madras Presidency, are—Rice, Chenna, Cooltee, Pessoloo, Minamaloo, Dholl, Anamaloo, Gingeley-oil-seed, and Wheat.

As only *heaped* measure is recognised by native usage, it is evident that there is no rule as to the Cubic Content of the measures used, for vessels of very different Cubic Content may contain the same when heaped, in consequence of having different diameters. It is on this account that the values given to Indian measures in such Tables as those of Major Jervis, or Dr. Kelly (in his *Cambist*), being founded on the gauged Cubic Content, do not represent the true quantities.

Eight slightly-heaped Pallis were supposed to contain a quantity of rice equal in weight to 1 old “Bazaar Maund” of 72½ lbs. av. So that 1 Palli = 9¼ lbs. av. The Palli has a capacity of about 2800 Cubic Inches when struck. The “Seer” of grain, supposed to be 16 Chittáks, and to have a struck capacity of about 57 Cubic Inches is in practice, a measure which, when slightly heaped, contains 80 Rupees Weight (a Seer Weight) of Rice, and has a struck capacity of about 68 Cubic Inches.

#### NUMERATION TABLE.

4 Articles	=	1 Grenda.
5 Grendas	„	1 Coori, or Score.

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\* See “Suggestions for a Uniform System of Weights and Measures throughout India.” By W. H. Bayley, Esq., of the Madras Civil Service.

## MEASURE OF TIME.

60 Poll	=	1 Ghurree	=	24 Minutes.
7½ Ghurree	„	1 Puhur	„	8 Hours.
8 Puhur	„	1 Day	„	24 Hours.
7 Days	„	1 Hugta	„	1 Week.
15 Days	„	1 Pukka		
2 Pukka	„	1 Maus	„	1 Month.
2 Maus	„	1 Rhitoo	„	1 Season.
6 Rhitoo	„	1 Batsar	„	1 Year.
12 Batsar	„	1 Joog.		

## INDIA—(MADRAS).

## MEASURES OF LENGTH AND SURFACE.

The English Foot and Yard are now used by almost all native workmen.

The native *Kole* or Artificers' Rod, as also the *Guz*, introduced by the Mahomedans, is about 33 English Inches.

The *Moolum* (translated coud or cubit), used for measuring Cloth, varies in different districts from 18 to 21 Inches. Its average length is about 19¼ or 19½ Inches. It is subdivided into 24 *Ungulums*, or finger breadths.

The *Baum* (translated Fathom) is about 6½ Feet.

For long distances the term *Nalli Valli* is used. It is derived from *Nalli*, a space of time, and *Valli*, a road, and signifies the distance walked in 24 minutes; that is, a little under 1½ English Miles. 7 *Nalli Valli* = 1 *Kadam*, or about 10 Miles.

The following are some native Measures of Length :—

<i>Madras value.</i>		<i>Systematic name.</i>		<i>English value.</i>		<i>Metric value.</i>
				Inches.		Metres.
8 Torah	=	1 Vurruh	=	$\frac{1}{2}$	=	·010588
24 Vurruh	„	1 Mulakoli	„	10	„	·25899
4 Mulakoli	„	1 Dumna	„	40	„	1·01596

## MEASURES OF SURFACE.

For Land Measure, the native method is to estimate the space which a certain quantity of seed will sow, and this makes

the native terms quite uncertain. Sometimes an area is denoted by so many "Rods" or "Ropes" Square; but these Rods and Ropes differ in every district.

In Madras itself and in some other districts the *Cawnie* is equal to 57600 Square Feet, or 1·8228 Acres, and is subdivided into 24 "Grounds," or else into 100 "Coolies," as follows:—

<i>Madras value.</i>	<i>Systematic name.</i>	<i>English value.</i> Square Yards.	<i>Metric value.</i> Acres.
	1 Coolie =	64	·53510208
4½ Coolies	= 1 "Ground" ,,	266½	2·229592
24 "Grounds" or 100 Coolies	} ,, 1 Cawnie	{ 6400 or Acres. 1·8228 }	} 53·510208

The Cawnie is also subdivided into *Annas* or sixteenths, each equal to 400 English Square Yards, or 234·4888 Square Mètres.

During the last few years, in consequence of the Revenue Field Survey, the English Acre has come to be generally known. In this Survey the Gunter's Chain is used, and in the accounts the Acre is subdivided into *thousandths*, as in the English Ordnance Survey.

#### MEASURES OF CAPACITY.

<i>Madras value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pints.	<i>Metric value.</i> Litres.
	1 Olluck =	86065	204826
8 Ollucks	= { 1 Puddee or Measure } ,,	2·88522	1·688612
8 Puddees	,, 1 Mercál ,,	Imperial Gallons. 2·88522	13·108900
5 Mercáls	,, { 1 Parah or Chunan } ,,	14·42610	65·544504
80 Parahs	,, 1 Garce ,,	{ 1154·0880 or Quarters. 18·0800 }	5243·56082

In 1846 the Madras Government fixed the Puddee, or Regulation Measure, to be used in all Government transactions at 160 Cubic Inches, or 1·44261 Imperial Quarts, the Olluck being 1/8th of the Puddee, and the Mercál being 8 Puddees. The Regulation Puddee is a cylinder, 8 inches by 4 inches. Though 21 years have elapsed, these measures, as so defined, have not yet been adopted either in Government or any other transactions. The "customary" Puddee, with its multiples and subdivisions is still in general use, and has been the *real* standard of measure even in the town of Madras since 1802.

It has when slightly heaped a Cubic capacity of  $104\frac{1}{2}$  English Cubic Inches, or 1.50392734 British Imperial Quart, or 1.708257 Litres, and contains about 128 Rupees' Weight, or 3.8 lbs. av. English of Rice. The Mercál has a capacity of 832 Cubic Inches, but when heaped in the usual way, it is equal to 8 heaped Puddees.

The Garoe for Grain is equal to 320 lbs. av. of Rice, or  $3\frac{1}{2}$  Imperial Maunds. The Parah of 5 Mercál is a square measure 10 inches deep by 20 inches wide, and 20 broad.

Two Regulation Puddees are nearly equal to 3 Seers.

In the Shipping trade Grain is sold in Bags of 2 Bengal Maunds =  $164\frac{1}{2}$  lbs. av.

The "Madras Puddee" is in use in some of the large towns and cantonments, but every locality has its own measures, differing in denomination and in size.

Perhaps the most common is the "Seer-measure," supposed to contain, when heaped, a "Pucka-seer" or 80 Rupees' Weight, or 2 lbs. av. of Rice. In 1852 the grain measures were found to be of different shapes and materials, some were shaped like hour-glasses, some were joints of bamboo, and some were earthenware pots, "but, as a general rule, they were intended to contain when heaped a Seer Weight, or definite number of Seers either of Rice or of mixed grain, but usually of Rice, and the Seer Weight was generally that of 80 Tolas.\*" The best "Seer-measures are about  $3\frac{1}{2}$  to  $3\frac{3}{4}$  inches in diameter, and 6 inches deep, but they are never true cylinders. Their Cubic Contents are from  $66\frac{1}{2}$  to 67 Cubic Inches, holding about 75 Tolas of Rice when *struck*, and 80 when moderately heaped.†" "A vessel of  $66\frac{1}{10}$  Cubic Inches Capacity, will contain, at a temperature of  $84^{\circ}$ , (a good day temperature for India,) 16650 Grains, or exactly  $92\frac{1}{2}$  Tolas' Weight of Water, This would hold on an average when *struck*,  $74\frac{1}{2}$  Tolas' Weight of Rice, and with a diameter of 4 inches, 80 Tolas', when *heaped*. Thus, if the Seer weight be assumed as 80 Tolas', such a measure would be exactly what is understood by the natives of the country to be a "Seer-measure."

"The sub-multiples of the Seer-measure are generally, (not always,) used for *liquid* measures in India. The only liquids sold by measure, are Ghee (clarified butter), Oil, and Milk. No defined measure is used for Arrack and Toddy (intoxicating

\* See Table of Weights.

† *Suggestions for a Uniform System of Weights and Measures throughout India.* By W. H. Bayley, Esq., of the Madras Civil Service.



liquors); and Spirits in Madras are sold by the "Dram" of 5·775 Cubic Inches, or  $\frac{1}{16}$  of the old Wine Gallon.\*

The Para is used for measuring Lime. It has a capacity of from 3800 to 4000 English Cubic Inches, and is equal to from 13·704855 to 14·426163 British Imperial Gallons, or from 62·267434 to 65·544667 Litres.

Salt is measured in Madras in Mercals, 424 of which are contained in a "Garce." The Garce is supposed to weigh 120 Indian Maunds, or 4·41 Tons English.

Oil is sold by the Viss of 16 Chitties. The Viss is about 2 ordinary Wine bottles."

Act VII., of 1833, only legalised the Tola as the *Unit of Weights*, and the "Official Table of Weights" given under the head of Bengal, has never been adopted in the Madras Presidency, even in Government transactions. The following weights, as sanctioned by the Government, have continued to be the legal weights of the Madras Presidency since 1846.

<i>Madras value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes
	1 Tola	= 180	= 11·66381
3 Tolas	= 1 Pollum	„ 540	„ 34·99143
8 Pollums	„ { 1 (Cutch) } Seer	„ 4320	„ 279·93144
5 (Cutch) Seers or	} „ 1 Viss	„ 3·08571	„ 1·8996572
40 Pollums			
8 Viss or	} „ 1 Maund	„ 24·68571	„ 11·1972576
40 Seers			
20 Maunds	„ 1 Candy	„ 493·71428	„ 223·945152

By *Commercial usage* the Viss is always considered 3½ lbs.; the Maund 25 lbs.; and the Candy 500 lbs. av.

\* "Arrack, an oriental name for Spirituous Liquors of all kinds, but in this country applied generally to those distilled in India and the adjoining regions. Arrack was formerly prepared in considerable quantities at Goa, but it is now chiefly manufactured in the Islands of Java and Ceylon. In Java, it is commonly termed *Kneip*, and is made from a mixture of 62 parts Molasses, 35 parts Rice, and 3 parts of the sweet juice called Palm-wine or Toddy, extracted from the flowers of different species of Palm-trees. In Ceylon, it is entirely distilled from Cocoa-nut tree Toddy. Ceylon Arrack is reckoned superior to that of Java; and in India, to which very large quantities are annually exported, it sells 10 or 15 per cent. higher. The prime cost of Arrack at Celumbo is from 8d. to 10d. per Gallon. In India, Arrack is prepared from the flowers of the *Makwah* tree, the *Basia longifolia*, and the *Basia latifolia*. In Turkey, it is distilled from the skins of Grapes, and flavoured with Aniseed."—*Mitburnis, O. C.*

In the Interior the Cutch Seer of 24 Tolas' (or Rupees') weight (8·8742 oz. av.) is used in Commercial dealings. The term Pucka weight means the Seer of 80 Tolas' weight, or 2½ lbs. av.; but in some places the Pucka Seer is 72, and in others 84 Tolas' weight. In weighing Brass and Zinc, the Seer is reckoned at 9 oz.; the Maund at 22½ lbs.; and the Candy at 450 lbs. av.

On the Western Coast the Maund is 35 lbs.

The Bengal Maund of 87½ lbs. av., known as the "Indian" or "Imperial" Maund, is in general use in the Custom Houses, and in the Shipping trade.

The "Garce" is used in the Grain trade. It is supposed to be 9256½ lbs. av.; but though it may have been so 70 years ago, it is now merely a Custom House term applied to 92 "Imperial" Maunds of Paddy (unhusked rice), or to 123 Imperial Maunds of Rice. Grain, however, is sold wholesale at the Ports by the bag of 2 Imperial Maunds.

Oil Seeds and Sugar are generally shipped in bags of 2 Imperial Maunds each, and are reckoned at 13 bags to the Ton English.

Indigo is shipped in Chests of 10 or 11 Cubic Feet.

In weighing Cotton the Maund is 24 lbs., and the Candy 480 lbs. av.

At Coimbatoor 6½ Viss = 1 Took = 10·28569 lbs. av. English, or 8·7478575 Kilogrammes.

### JEWELLERS' WEIGHTS.

The Weights used by Jewellers are the *Munjadi* equal to 5 Troy Grains, or ·323995 Grammes, and the *Pagoda* equal to 54 Troy Grains, or  $\frac{1}{10}$ th of a Pollum, or 3·499143 Grammes.

### NUMERATION TABLE.

3 Articles	=	1 Patch.
10 Patch	„	1 Corge.

### INDIA—BOMBAY.

#### MEASURES OF LENGTH.

Bombay value.	Systematic name.	English value.	Metris value.
		Inches.	Metre.
2 Ungulee = 1 Tussoo		= 1½	= ·028574
8 Tussoos „ 1 Vent'h (or ½ Hat'h)		„ 9	„ ·228595
16 Tussoos „ 1 Hát'h (covid or cubit)		„ 18	„ ·457191
24 Tussoos „ 1 Guz		„ 27	„ ·685785

In Bombay the Guz, the Tussoo, and the Ungulee, are the measures used in the purchase and sale of Cloth. A Builders' Tussoo is equal to 2·3625 English Inches, or ·0600064 Mètre.

In Surat the Builder's Tussoo is equal to 1 inch English, or ·025899 Mètre, and the Builder's Guz to 2 feet, or ·609588 Mètre. But the Cloth Measure Tussoo of Surat, is equal to 1·161 of an English Inch, or ·0294889 Mètre, and the Guz to 27·864 Inches,\* or ·7077328 Mètre.

## MEASURES OF SURFACE.

<i>Bombay value.</i>	<i>Systematic name.</i>	<i>English value.</i> Square Yards.	<i>Metric value.</i> Square Metres.
84 $\frac{1}{30}$ Sq. Hat'h =	1 Kutty =	9·8175 =	8·208388
20 Kutties	„ { 1 Pund (or) Vaso } „	196·35 „	164·167646
20 Pund	„ 1 Beegah „	3927 „	32·833529
120 Beegah	„ 1 Chahur „	<sup>Acres.</sup> 97·8632 „	3940·0235028

The *Surface Measures* vary both in names and values, in almost every District of the Presidency; but those just given are most frequently used. The average value of the Beegah is about  $\frac{3}{4}$  of an English Acre. An English Acre is 1 $\frac{3}{4}$  Delhi Beegah, or 1 Orissa Beegah. The Tirhoot Beegah, which is subdivided into 400 Square *Lagi*, is equal to 4225 Square Yards, or ·8729 Acre English. In the Revenue Field Survey, the English Acre is used; it is subdivided into 40 Goontahs, and each Goontah into *Annas* or *sixteenths*.

In the North-West Provinces, the following are the Surface Measures :—

<i>Local value.</i>	<i>Systematic name.</i>	<i>English value.</i> Sq. Inches.	<i>Metric value.</i> Sq. Metres.
20 Nanwansi =	1 Saswansi =	24 $\frac{1}{2}$ =	·015807
20 Saswansi	„ 1 Kachwansi „	490 „	·3161492
20 Kachwansi	„ 1 Biswansi „	<sup>Square Yards.</sup> 7 $\frac{1}{8}$ „	6·322983
20 Biswansi	„ 1 Biswa „	151 $\frac{1}{2}$ „	126·459671
20 Biswa	„ 1 Beegah „	3025 „	2529·193425

\* The *Wassa* is a Timber Measure equal to 1·858 of an English Inch. The Guz for Timber Measurement is equal to 27·17 English Inches. The *Hat'h* or Cubit, for measuring Matting, of 18 Tussoos, is equal to 20·9 English Inches.

In Gugerat the following denominations are applied to the subdivisions of the Beegah :—

<i>Gugerat value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
20 Khund	= 1 Padtal	= 24 $\frac{1}{2}$ = Square Inches.	015807 Square Metres.
20 Padtal	„ 1 Padat	„ 490 „ Square Yards.	3161492
20 Padat	„ 1 Vishwasi	„ 7 $\frac{2}{3}$ „	6322985
20 Vishwasi	„ 1 Vaso	„ 151 $\frac{1}{2}$ „	126459671
20 Vaso	„ 1 Beegah	„ 3025 „	2529198425

## WEIGHTS.

The “Imperial Weights of India,” given under the head of Bengal, are being steadily introduced in Bombay, but they have not yet superseded the following local Weights, which are still very generally used in all Commercial dealings :—

<i>Bombay value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
4 Dhan or Yav	= 1 Ruktica	= 2.1267 = Troy Grains.	13781 Grammes.
8 Ruktica	„ 1 Masha	„ 17 $\frac{1}{2}$ „	1102482
4 Masha	„ 1 Tank	„ 68 $\frac{1}{2}$ „	4409927
72 Tanks, or 30 Pice	} „ 1 Seer *	„ 7 „ lbs. av.	31751475
40 Seers	„ 1 Maund	„ 28 „	1270059 Kilogrammes.
20 Mannds	„ 1 Candy	„ 560 „	2540118

The Candy varies in different districts from 560 lbs. to 3055 lbs. The Sattara Candy is 3055 lbs. The Candy for Cotton is 28 Maunds, or 7 cwt. About 50 Bombay Maunds are equal to 17 Imperial Maunds, and 1 Imperial Maund is equal to about 2.939 Bombay Maunds.

At Poona the Seer is equal to 80 old Rupees' Weight, or to 78.658 Tolas, and its multiples are as follows :—

<i>Poona value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
80 Old Rupees' Weight	} = 1 Seer	= 1.9714 = lbs. Av.	894.21225 Grammes.
5 Seers	„ 1 Pusseri	„ 9.857 „	4.47106 Kilogrammes.
8 Pusseri	„ 1 Maund	„ 78.856 „	35.76849
3 Maunds	„ 1 Palla	„ 236.57 „	107.80547

\* The Poona Seer of 72.6 Tolas equal to 1.367 lbs. av., is used in some places.

There are also used at Poona, Maunds varying from 13½ to 14 Seers.

The *Kurrachi* Weights are slightly different from the Imperial Weights of India. They are as follows :—

<i>Kurrachi value.</i>	<i>Systematic name.</i>	<i>Imperial Tolas.</i>	<i>English value.</i>	<i>Metric value.</i>
			oz. av.	Grammes.
4 Kasira = 1 Dokra =		1.08	½	12.59979
4½ Dokras „ 1 Anna „		4.86	2 „	56.6991
16 Annas „ { 1 (Pucka) } „	Seer	77.76	2 „	907.185
40 (Pucka) } „ 1 Maund „	Seers.	38.83	80 „	36.2874
3 Maunds „ 1 Potea „	{ 118.64 or } Maunds.		240 „	108.8622
		2.915		

At Surat the Maund weighs 36 lbs. av., and the Seer 14½ oz. av. 1 Imperial Seer is equal to 2½ Surat Seers, and the Bombay Seer is ⅙ths of the Surat Seer; so that 9 Bombay Seers or Maunds = 7 Surat Seers or Maunds.

### JEWELLERS' WEIGHT.

<i>Bombay value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grain.	Grammes.
20 Vasses = 1 Ruttee =		1½	.12149
3 Ruttees „ 1 Waal „		5½	.36449
8 Waals „ 1 Tank „		45	2.91595
4 Tank „ 1 Tola „		180	11.66382

In Gujerat the Weights used by Jewellers are as follows :—

<i>Gujerat value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
6 Chawals or } = 1 Ruttee or Goonj =		1½	.124198
Chows			
3 Goonj „ 1 Val or Waal „		5½	.372594
16 Waals „ 1 Guddeanna „		92	5.961508
2 Guddeannas „ 1 Tola „		184	11.923016

**MEASURES OF CAPACITY FOR DRY GOODS AND  
LIQUIDS.**

<i>Bombay value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pints.	<i>Metric value.</i> Litres.
	1 Tippree =	28001 =	15902
2 Tipprees =	1 Seer „	56002 „	31805
4 Seers „	1 Pylee „	224009 „	127222
16 Pylees „	1 Parah „	448018 „	2035555
8 Parahs „	1 Candy „	3584151 „	16284441
25 Parahs „	1 Mooda „	{ 11200473 or Impl. Quarters. 175007 }	50888878

There is also for Liquids the Seer of 60 Tolas, equal to 1.234 British Imperial Pint. It weighs 1.54 lbs. av., or 69853245 Grammes, and 50 such Seers make a Maund equal to 7.7125 British Imperial Gallons, and weighing 77 lbs. av., or 34.92662 Kilogrammes. The Seer, when heaped with Rice, contains 1.46 lbs. av., or 662.2451 Grammes; the Pylee contains 5.84 lbs. av., or 2.6489802 Kilogrammes; the Parah, 93.44 lbs. av., or 42.3886882 Kilogrammes; the Candy, 747.52 lbs. av., or 339.0694656 Kilogrammes; and the Muda = 18688 lbs. av., or 8476.78664 Kilogrammes; the Seer contains of Water 11½ oz. av., or 317.51475 Grammes; the Pylee, 2½ lbs. av., or 1.270059 Kilogrammes; the Parah, 44½ lbs. av., or 20.320994 Kilogrammes; the Candy, 358½ lbs. av., or 162.567552 Kilogrammes; and the Muda, 10 cwt., or 4064.1888 Kilogrammes.

Paddy (Rice in the husk) is sold by the Mooda of 4 Candies, each of 6½ Parahs, each of 20 Adholees, each of 7½ Seers, each of 2 Tipprees, as shown in the following table:—

<i>Bombay value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pints.	<i>Metric value.</i> Litres.
2 Tipprees =	1 Seer =	56002 =	31805
7½ Seers „	1 Adholee „	420017 „	238541
20 Adholees „	1 Parah „	1050044 „	4770832
6½ Parahs „	1 Candy „	6562777 „	29817702
4 Candies „	1 Mooda „	26251109 „	119270808

The Candy of this table is equal to 24.236175 British Imperial Bushels, or 8.80925 Hectolitres, and weighs 215½ lbs. av., or 97.947 Kilogrammes.

Salt is sold by the Parah of 10½ Adholees, equal to 5·798 British Imperial Gallons; 100 Parahs = 1 Anna = 72·475 British Imperial Bushels, and 16 Annas = 1 Rass = 144·95 British Imperial Quarters. The Rass of Rice weighs, on the average, 1120 Imperial Maunds, or 41½ Tons English.

At Poona, the following measures are used:—

Poona value.	Systematic name.	English value. Imperial Pints.	Metric value. Litres.
8 Chipteen	= 1 Seer	= 56002	= 81805
4 Seers	„ 1 Pylee	„ 2·24009	„ 1·27222
12 Pylees	„ 1 Maund	„ 3·36014	„ 15·26666
2½ Maunds	„ 1 Palla	„ 8·40085	„ 38·16665
8 Pallas	„ 1 Kandi	„ 67·20288	„ 305·83327

In *Timber Measurement* in the Bombay dockyards, a *Covit* or *Candi* = 12 Cubic Feet 1216 Inches English, and an English Ton, or 50 Cubic Feet, is equal to 3 Covits and 18½ Vassas. Planks are sold by the 100 Guz = 26 Cubic Feet 206 Inches English.

### MEASURES OF LENGTH AND SURFACE.

The British Measures of Length and Surface are used, (see Great Britain).

At Candy, the Land Measure is the *Amomam* of 4 Peylas, each of 10 Coornies. It is equal to about 2 Acres 2 Roods 87½ Perches English.

### MEASURES OF CAPACITY FOR DRY GOODS.

Ceylon value.	Systematic name.	English value. Imperial Pints.	Metric value. Litres.
	1 Seer	= 1·86524	= 1·05998
4½ Seers*	= 1 Cooreie	„ 1·11914	„ 5·08479
2½ Cooreies	„ 1 Mercal	„ 2·79786	„ 12·71199
2 Mercals	„ 1 Parah	„ 5·59578	„ 25·42898
8 Parahs	„ 1 Amomam	„ { 44·76588 or } Quarters. 69946	„ { Hectolitres. 2·03892
25 Amomams	„ 1 Garce	„ 17·48667	„ 50·80498

\* Or in Struck Measure, 4 Struck Chundoos.

The Para weighs, of Coffee, from 80 to 85 lbs. av. ; of Pepper, from 27 to 80 lbs. av. ; of Salt, from 52 to 55 lbs. av. ; and of Rice, from 42 to 46 lbs. av.

### MEASURES OF CAPACITY FOR LIQUIDS.

<i>Ceylon value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Gallons.	Litres.
	1 Quart =	·208277 =	·946
4 Quarts =	1 Gallon „	·833111 „	3·785
2 Gallons „	1 Welt „	1·666222 „	7·57
75 Welts „	1 Legger „	124·96665 „	567·78

The Gallon and Quart of this Table are the old English Wine Gallon and Quart.

In the wholesale purchase of Spirits, (Arrack, &c.,) 80 Welts are reckoned to the Legger ; but in retail sales, 75 Welts are called a Legger.

### WEIGHTS.

The Weights of the United Kingdom of Great Britain and Ireland (see p. 110,) are used for Foreign Goods.

The native Candy, or Bahar, = 500 lbs. av., or 226·79625 Kilogrammes.

The Garce is 9256½ lbs. av., or 4·13236 Tons English.

A Bale of Cinnamon contains about 92½ lbs. av. English.

### GOA—(Portuguese India.)

The old Weights and Measures of Portugal, (See Brazil,) are those chiefly used, but the Weights and Measures of British India are also used.

### MEASURES OF LENGTH.

The old Portuguese Vara and Covado (See Brazil).

### MEASURES OF CAPACITY FOR DRY GOODS AND RICE.

The old Measures of Portugal are those chiefly used. The Candy (of Goa) of 20 Maunds, each of 24 Medidas = 13·572258 British Imperial Bushels,\* or about 493½ Litres.

\* The old English Winchester Bushels.



Pearls are sold by the *Chego*, the value of which in Carats is estimated as follows:—

Carats.	Chegos.	Troy Grs.	Grammes.	Carats.	Chegos.	Troy Grs.	Grammes.
1	= 5	= 3½	= .20785	7	= 34	= 22½	= 1.45149
2	„ 8	„ 6¾	„ .41471	8	„ 44	„ 25½	„ 1.65885
3	„ 11½	„ 9¾	„ .62207	9	„ 56	„ 28¾	„ 1.86621
4	„ 16	„ 12¾	„ .82942	10	„ 69	„ 32	„ 2.07857
5	„ 21	„ 16	„ 1.08878	11	„ 84	„ 35½	„ 2.28092
6	„ 27	„ 19½	„ 1.24414	12	„ 100	„ 38¾	„ 2.48828

### MALAYA.

(MALACCA, SINGAPORE, PENANG, or PRINCE OF WALES' ISLAND).

#### MEASURES OF LENGTH.

Malayan value.	Systematic name.	English value.	Metric value.
	1 Hasta or Cubit =	18 Inches.	Metres. .45719
4 Hastas =	1 Depa	6 Feet.	1.82876
2 Depas	„ 1 Jumba	12	3.65753
20 Jumbas	„ 1 Orlong	80 Yards.	73.15068

The English Yard is also occasionally used as a measure of length.

The Hasta is divided into Halves and Quarters. It is used in Cloth Measures. An English Yard is equal to 2 Hastas.

#### MEASURES OF SURFACE.

The Square Orlong = 6400 Square Yards, or 1.92281 English Acre, or 5351.0281548 Square Mètres.

#### MEASURES OF CAPACITY.

Malayan value.	Systematic name.	English value.	Metric value.
4 Chapahs =	1 Gantang	1½ Imperial Gallons.	Litres. 5.67935
10 Gantangs	„ 1 Parah or Parra	12½	56.79358
800 Gantangs	„ 1 Coyan	1000	4543.48712

The Gantang is variable in size. Thus, at Penang, it is equal to .9796 Imperial Gallon English, and its multiples in proportion. The Gantang is the principal Measure of Capacity for Rice, Salt, Oil, and other articles. The Parah is only a nominal measure used in reckoning. It nominally contains 10 Gantangs, but sometimes it contains 5, sometimes 15, and sometimes 20 Gantangs. A Coyan is supposed to weigh about 47 cwt. English.

## WEIGHTS.

Malayan value.	Systematic name.	English value.	Metric value.
		Oz. av.	Grammes.
	1 Tael =	1½ =	37.79941
16 Taels	= 1 Catty	1½	604.79066
100 Catties	„ 1 Pecul	133½	60.47906
3 Peculs	„ 1 Bahr	400	181.43720
40 Peculs	„ 1 Coyan	3333½	2419.16266

The denominations of Weights are the same as those of China. The Pecul and Catty are not always of the same uniform weight; for instance, the Pecul at Penang is equal to 142½ lbs. av., and is only used in weighing Pepper and Tin, but this is owing to variations in the weight of the Bahr. At Penang, it is equal to 421 Catties. Goods are bought from native vessels by the Penang Pecul of 142½ lbs. av., or 64.71253 Kilogrammes, and sold by the Chinese Pecul of 133½ lbs. av.

At Malacca the Pecul weighs 135 lbs. av., or 61.23498 Kilogrammes, and a *Bahr* weighs 428 lbs. av.

Grain and Salt are sold by the *Coyan* of 40 Chinese Peculs.

The Penang *Coyan* is a Measure of Capacity which contains 43 Peculs of Salt, or 45 of Rice.

A Sack of Salt weighs 100 lbs. av., or 45.35925 Kilogrammes, and a Sack of Rice or Dholl 164 lbs. av., or 74.38917 Kilogrammes.

## GOLD DUST WEIGHT.

Local value.	Systematic name.	English value.	Metric value.
		Troy Grains.	Grammes.
	1 Saga =	4½ =	.28079
12 Sagas	= 1 Miam	52	3.36955
16 Miams	„ 1 Bongkal	832.84	53.91294
20 Bongkals	„ 1 Catty	$\left. \begin{array}{l} \text{lbs Troy.} \\ 2.9818 \text{ or} \\ \text{lbs. av.} \\ 2.3795 \end{array} \right\}$	1.07826

A Gold Catty is 1½ of the common Catty.

## BURMAH.

## MEASURES OF LENGTH.

<i>Burmese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>Inches.</small>	<small>Metres.</small>
1 $\frac{1}{11}$ Thits	= 1 Pulgat	= 1	·025399
8 Thits or 5 $\frac{1}{2}$ Pulgats	} „ 1 Taim or Maik*	„ 5 $\frac{1}{2}$ „	·139694
4 Taim	„ { 1 Saading or Toung }	„ 22 „	·558778
4 Toung	„ 1 Lan	„ 88 „	2·235136
7 Toung	„ 1 Tha	„ 154 „	3·911448
20 Thas	„ 1 Oke-tha-pah	„ 85 $\frac{3}{4}$ „	78·22897
250 Thas	„ 1 Tain	„ 1069 $\frac{1}{2}$ „	977·86220
4 Tains or 1000 Thas	} „ 1 Dain	„ 2·4305 „	3·9114488
6 $\frac{1}{2}$ Dain or 320 Oke-tha- pahs	} „ 1 Uzena	„ 15·5555 „	25·0332723

The English Yard, Foot, and Inch are being adopted.

## MEASURES OF CAPACITY.

<i>Burmese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>Imperial Gall.</small>	<small>Litres.</small>
	1 Lamyet	= 1	·14198
2 Lamyets	= 1 Lamay	„ 2 „	·28468
2 Lamays	„ 1 Salay	„ 1 „ <small>Imperial Pint.</small>	·56936
4 Salays	„ 1 Pyee	„ 2 „ <small>Imperial Quarts.</small>	2·27744
4 Pyees	„ 1 Sah	„ 1 „ <small>Imperial Gallon.</small>	4·543487
2 Sabs	„ 1 Saik	„ 1 „ <small>Imperial Peck.</small>	9·086974
2 Saiks	„ 1 Kwai	„ 1 „ <small>Imperial Bushel.</small>	18·173948
2 Kwais	„ 1 Ten or Teng	„ 1 „ <small>Imperial Quarters.</small>	36·347896
100 Tens	„ 1 Coyan	„ 12 $\frac{1}{2}$ „	3634·7896

The Measures of British India are gradually being introduced into Burmah.

A Teng is a *basket full*, a Teng of Rice is supposed to be equal to about 58 $\frac{1}{2}$  lbs. av., or 16 Viss, or 40 Penang Catties.

\* The breadth of the hand with the thumb extended.

## WEIGHTS.

<i>Burmese value.</i>	<i>Systematic name.</i>	<i>English value.</i>		<i>Metric value.</i>	
		Troy Grains.		Grammes.	
2 Small Ruays =	1 Large Ruay =	3·9875 =		·25514	
4 Large Ruays	„ { 1 Bai or Ruay or 1 Anna } „	15·75	„	1·02058	
2 Bais	„ 1 Moo	31·5	„	2·04117	
2 Moos	„ 1 Mat	63	„	4·08233	
4 Mats	„ 1 Kyator Tical,	252	„	16·32983	
100 Kyats	„ { 1 Piakthah or Viss } „	3‡	„	1·682983	

The Small Ruay is the Scarlet Bean (*Abrus Precatorius*), and the large one is the black oblong bean (*Adenanthera Pavonina*). But the Bai, Moo, Mat, Kyat, and Piak, are real weights usually of polished brass.

## SIAM.

## MEASURES OF LENGTH.

<i>Siamese value.</i>	<i>Systematic name.</i>	<i>English value.</i>		<i>Metric value.</i>	
		Inches.		Metres.	
	1 Niu*	=	‡	=	·20637
12 Niu	= 1 Kup or Keub‡	„	9‡	„	·24764
2 Kup	„ 1 Sok ‡	„	19‡	„	·49528
2 Sok	„ 1 Ken	„	39	„	·99056
2 Ken	„ 1 Wa or Vöna	„	78	„	1·98112
20 Wa	„ 1 Sen	„	43‡	„	39·62244
100 Sen	„ 1 Röneng	„	2·462119	„	3·962244
4 Röneng	„ 1 Yote	„	9·848477	„	15·848976

\* The Siamese value of the Niu is stated to be "Piet Met Can Pleüae," that is, 8 grains of husked rice.

‡ Measured from the end of the thumb to the middle finger.

‡ Measured from the end of the middle finger to the elbow.

## MEASURES OF CAPACITY.

<i>Siamese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Tanan	= 1 $\frac{1}{4}$ <small>Pish.</small>	= .8519 <small>Litres.</small>
20 Tanans	= 1 Tang	„ 3.75 <small>Gallons.</small>	„ 17.038076
25 Tanans or 1 $\frac{1}{4}$ Tang	} „ 1 Sat	„ 4.6875	„ 21.297595
80 Sats or 100 Tang	} „ 1 Coyan	„ 375	„ 1.7088076 <small>Hectolitres.</small>

## WEIGHTS.

<i>Siamese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Tical*	= 233 $\frac{1}{2}$ <small>Troy Grains.</small>	= 15.11975 <small>Grammes.</small>
4 Ticals	= 1 Tael	„ 933 $\frac{1}{2}$ <small>lbs. av.</small>	„ 60.479 <small>Kilogrammes.</small>
20 Taels	„ 1 Catty	„ 2 $\frac{1}{2}$	„ 1.20958
50 Catties	„ 1 Picul	„ 133 $\frac{1}{2}$	„ 60.479

The *Coyan* is a weight which is usually reckoned equal to 20 Piculs, but it varies from 18 to 22 Piculs. The *Coyan* of Paddy (rice in the husk) is reckoned at about 16 $\frac{1}{2}$  Piculs, and is considered equal to 2133 $\frac{1}{2}$  lbs. av.

## MEASURES OF TIME.

<i>Siamese value.</i>	<i>Systematic name.</i>	<i>English value.</i>
60 Winatees	= 1 Natee	= 1 Minute
6 Natees	„ 1 Bat	„ 6 Minutes
10 Bats	„ 1 Mongortoom	„ 1 Hour
12 Mong	„ 1 Wan (period of day)	„ 12 Hours
12 Toom	„ 1 Koon (period of night)	„ 12 Hours
29 or 30 Wans	„ 1 Duan	„ 1 Lunar Month
12 or 13 Duans	„ 1 Pee	„ 1 Year
10 Pees	„ 1 Sok or Cycle	„ 10 Years

Each month is divided into two parts, the first called *Kang Koon* (increasing moon), and the second called *Kang Raam* (waning moon). The days of the second half are also numbered from 1 to 14 or 15. The even months consist of 80 days, and the odd ones of 29 days; and, in every 19 years, 8 intercalary

\* The Tical for weighing Gold and Silver is equal to 236 Troy Grains, or 15.29257 Grammes.

days are added. All the Siamese months, except the first two, are denoted by numbers. The 1st and 2nd months are called respectively, *Ai* and *Yee*, the others are called *Duan-Sam*, *Duan-See*, *Duan-Ha*, *Duan-Hook*, *Duan-Ket*, *Duan-Peet*, *Duan-Kan*, *Duan-Sib*, *Duan-Sib-it*, *Duan-Sib-Song*, *i. e.* 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, and 12th months. In reference to the seasons, the 1st and 2nd months are called winter; the 3rd, 4th, and 5th, alight summer, and the other seven months, complete summer.

The Siamese have two eras, the *Sacred* and the *Civil*, the former reckoned from the death of Budha B.C. 545, is called *Putta Sakkarat*, and the latter called *Chula Sakkarat* was established A.D. 638 by the Siamese King *Phra Ruang*, soon after the Hejira.

The year 1867 corresponds to the 2450th year of the Sacred era, or to the 1229th year of the Civil era of Siam. In expressing dates, the Siamese give the day of the week, the day of the increasing or waning moon, the month, the year of the era, and cyclic name of the year. The dates are usually written at the four points of a cross; thus, 3 + 5, Tuesday, 2nd day of waning moon of the 5th month. 2

## ANAM—(or, COCHIN CHINA.)

### MEASURES OF LENGTH.

<i>Anamese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>Inches.</small>	<small>Meters.</small>
	1 Ly	= .0192	= .00048
10 Ly	= 1 Phan	„ .192	„ .00487
10 Phan	„ 1 Tac	„ 1.92	„ .04876
10 Tac	„ 1 Thuoc or Cubit	„ 19.2	„ .48766
		<small>Feet.</small>	
5 Thuoc	„ 1 Ngu	„ 8	„ 2.43835
10 Thuoc	„ 1 Truon	„ 16	„ 4.87670
		<small>Yards.</small>	
3 Ngu	„ 1 Sao	„ 8	„ 7.81506
3 Truons	„ 1 Chai Vai or That	„ 16	„ 14.63012
10 Sao	„ 1 Mao	„ 80	„ 73.15064
10 Chai Vai	„ 1 Quo	„ 160	„ 146.30128

The Thuoc, which is the chief unit of measures of length, varies considerably in different places; thus there are six different values assigned to it, varying from 15 to 25½ English

Inches, or from .89098 to .656209 Mètre, but the Thuoc, the value of which is given in the Table, is the one in general use. The Drapers' Thuoc is a little longer, being equal to 25½ Inches; the Tac to 2¼ inches; the Phan to .256; and the Ly to .0256 inch English.

## ITINERARY MEASURES.

<i>Anamese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Yards.	Mètres.
	1 Li or Mile	= 486	= 444.890188
2 Li	= 1 Dam	" 972	" 888.780276
5 Dam	" 1 League	" 2.761	" 4.4489
		Miles.	Kilometres.

## SURFACE OR SQUARE MEASURES.

<i>Anamese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Square Yards.	Square Metres.
9 Sqr. Ngu	= 1 Sqr. Saö	= 64	= 53.510208
100 Sqr. Saö	" 1 Sqr. Maö	" 6400	" 53.510208
			Aras.

## WEIGHTS.

<i>Anamese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
10 Ai	= 1 Tran	= .000006	= .0000003
10 Tran	" 1 Huy	" .000060	" .0000038
10 Huy	" 1 Chau	" .000601	" .0000389
10 Chau	" 1 Hot	" .006015	" .0003893
10 Hot	" 1 Hao	" .060156	" .0038981
10 Hao	" 1 Li	" .601563	" .0389806
10 Li	" 1 Phan	" 6.015625	" .3898061
10 Phan	" 1 Dong	" 60.15625	" 3.8980605
10 Dong	" 1 Luong	" 601.5625	" 38.9806056
10 Luong	" 1 Nen	" 6015.625	" 389.806056
16 Luong	" 1 Can	" 1 lb. av.	" 623.68969
10 Can	" 1 Yen	" 13½	" 6.23689
5 Yen	" 1 Binah	" 68½	" 31.18484
10 Yen	" 1 Ta	" 137½	" 62.36896
5 Ta	" 1 Quan	" 687½	" 311.84484
			Kilogrammes.

## MEASURES OF CAPACITY FOR GRAIN.

<i>Anamese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Gallons.	<i>Metric value.</i> Litres.
	1 Hao	= 6½	= 28·276586
2 Hao	= 1 Shita or Tao	„ 12½	„ 56·541172

## PERSIA.

The weights and measures of Persia are not uniform, being different in different places, and according to the purposes for which they are employed:—

## MEASURES OF LENGTH.

<i>Persian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Inches.	<i>Metric value.</i> Metres.
	1 Gereh	= 2½	= ·06032
4 Gerehs	= 1 Quarter-Zer	„ 9½	„ ·24129
8 Gerehs	„ 1 Half-Zer	„ 19	„ ·482581
16 Gerehs	„ 1 Zer	„ 38	„ ·965162

The Kadam, or Step, is equal to about 2 feet English, or ·609588 Mètre, and 12000 Kadam make 1 Fersakh (Parasang) equal to about 4½ Miles, or 7·2491917 Kilometres; but varying from 3½ to 4½ Miles, or from 5·68826022 to 7·2491917 Kilometres.

There is also the Schah Goss, each of 2 feet, each of 24 fingers, each of 7 Barleycorns. It is used in measuring Woollen goods, and is equal to 40 English Inches, or 1·0160 Mètre; the Monkelsar, or Bashoor Goss, used in retail transactions and equal to 86½ English Inches, or ·9347 Mètre; and the Tabreez Goss equal to about 44 English Inches, or 1·17579 Mètre.

The Fersakh (Parasang) is supposed to be  $\frac{1}{37}$ th of a degree of the Equator, and is equal to about 7 Russian Versts.

Distances are commonly reckoned by the Fursoch or Augage, (being the distance a horse can walk in one hour,) about 4½ English Miles. Great distances are reckoned by a caravan's journey in a day, about 80 English Miles.

## SURFACE AND CUBIC MEASURES.

The Surface and Cubic Measures are the Squares and Cubes of the Measures of Length.



## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Persian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Gallons.	<i>Metric value.</i> Litres.
4 Sextarios	= 1 Chenica	= 28944	= 1315066
2 Chenicas	„ 1 Capicha	„ 57888	„ 2630132
3½ Capichas	„ 1 Collothun	„ 1809	„ 8219168
8 Collothun	„ 1 Artata	„ 1809	„ 8575343

Liquids are mostly sold by weight.

## WEIGHTS—(COMMERCIAL).

<i>Persian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes.
	1 Miscal	= 71	= 4600729
16 Miscals =	1 Sihr (Seer)	„ 284	„ 73611664
100 Miscals „	1 Ratel	„ 10142	„ 4600729
40 Sihrs „	1 Batman (Maund)	„ 649142	„ 294446
100 Batman „	1 Karwar	„ 649142	„ 294446

The Batman, the chief commercial weight varies in almost every Province and Town, and that given in the Table is the Batman of Tabreez and Mesched. Its value is commonly taken at 6½ lbs. av. English, or 3061753 Kilogrammes.

The Batman-i-Shah is equal to 2 Batman of Tabreez = 13½ lbs. av. English, or 6123506 Kilogrammes.

The Batman Rei equal to 4 Batman of Tabreez = 27 lbs. av. English, or 122447012 Kilogrammes.

A load for a horse is 40 to 50 Tabreez Batman.

A load for a camel is 60 to 70 Tabreez Batman.

A load for a donkey is 15 to 25 Tabreez Batman.

The Tehraun Rih contains 1600 Miscals, and the Karwar is 25 Rih.

## WEIGHTS FOR GOLD AND SILVER.

<i>Persian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes.
3 Häbbi	= 1 Nahood	= 29583	= 191697
4 Nahoods	„ 1 Döng	„ 1183	„ 766788
6 Döng	„ 1 Miscal	„ 71	„ 4600729
2 Miscals	„ 1 Dirhem	„ 143	„ 9201458

Pearls are weighed by the Abas =  $2\frac{1}{2}$  Troy Grains, or .1458 Grammes.

Precious Stones are weighed by the Keerat = 5 Troy Grains, or .32399 Grammes.

### ARABIA.

The weights and measures of Egypt are much used in Arabia. The following weights and measures are used at Mocha:—

<i>Mocha value.</i>	<i>English value.</i>	<i>Metric value.</i>
	Inches.	Metres.
1 Covido or Covid	= 19	= .48258
1 Guz	„ 25	„ .63397
1 Kassaba	„ 147.6	„ 3.74889
1 Mile	„ 1.219	„ 1.96372
1 Farsakh	„ 3	„ 4.83279
1 Baryd (4 Farsakh)	„ 12	„ 19.33117

### MEASURES OF CAPACITY FOR DRY GOODS.

<i>Mocha value.</i>	<i>Systematic name.</i>	<i>English weight</i>	<i>Metric weight</i>
		<i>in rice.</i>	<i>in rice.</i>
		lbs. av.	Kilogrammes.
	1 Kella (or Mecmeda)	= 4.679	= 2.1224
40 Kellas	= 1 Tomand	„ 187.17	„ 84.899

<i>Mocha value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Gallons.	Litres.
16 Vakias	= 1 Noosfia	= .20827	= .946
8 Noosfias	„ 1 Koddi	„ 1.66622	„ 7.57

### WEIGHTS—(COMMERCIAL.)

<i>Mocha value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		lbs. av.	Kilogrammes.
40 Vakeias	= 1 Maund	= 3	= 1.36077
10 Maunds	„ 1 Feehsil	„ 30	„ 13.60777
15 Feehsill	„ 1 Behaar	„ 450	„ 204.11662

Sometimes the value of the Behaar is taken as 439.445 lbs. av. English, or 199.35 Kilogrammes.

## JEWELLERS' WEIGHTS.

<i>Mocha value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes.
16 Karats =	1 Kaffala =	47·864 =	4·6523
10 Kaffalas	„ 1 Vakeia	„ 478·642	„ 46·523
1½ Vakeias	„ 1 Bikh	„ 717·963	„ 69·7845

## JAPAN.

## MEASURES OF LENGTH.

<i>Japanese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Inches. Yards.	<i>Metric value.</i> Metres. Kilometres.
10 Rin =	1 Boo =	·12 =	·008047
10 Boo	„ 1 Sun	„ 1·2	„ ·030479
10 Sun	„ 1 Shiaku	„ 12	„ ·304794
3 Shiaku	„ ½ Ken	„ 1	„ ·914383
6 Shiaku	„ 1 Ken	„ 2	„ 1·828766
60 Ken	„ 1 Chu	„ 120	„ 109·72596
36 Chu	„ 1 Ri	„ 4320	„ 3·95013

Rough Timber is sold by the *Yama-Ken-Zai*, a measure of 63 *Sun*. The *Ken* used by Carpenters is called *Ken-Zai*. The *Go-Shiaku-Zai* is a measure of 5 *Shiaku*.

The *Shiaku* used in Cloth Measure is only equal to 15 English Inches; it is usually called *Kuchira Shiaku*; and the *Sun*, *Boo*, and *Rin* in Cloth Measure, are respectively equal to  $1\frac{1}{4}$ ,  $\frac{3}{10}$ , and  $\frac{3}{100}$  inches English.

## SQUARE MEASURES.

<i>Japanese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Square Yards.	<i>Metric value.</i> Square Metres. Ares.
30 Po =	1 Is'she =	120 =	100·33164
10 Is'she	„ 1 It'tau	„ 1200	„ 10·033164
10 It'tau	„ 1 It'choe	„ 12000	„ 100·33164

The Square *Ken* is considered the integer of Square Measure, it is equal to 4 Square Yards English, and is called *Tsubo*. An English Acre is equal to 1210 *Tsubo*.

## MEASURES OF CAPACITY.

<i>Japanese value.</i>	<i>Systematic name.</i>	<i>English value:</i> Imperial Pints.	<i>Metric value.</i> Litres.
10 Dzoku	= 1 Ke	= .00008	= .00001
10 Ke	„ 1 Sat	„ .00082	„ .00018
10 Sats	„ 1 Sai	„ .00828	„ .00186
10 Sai	„ 1 Shiaku	„ .08288	„ .01864
10 Shiaku	„ 1 Goö	„ .82882	„ .18646
10 Goö	„ 1 Shoö	„ 4.104	„ 1.86464
10 Shoö	„ 1 To	„ 41.04	„ 18.64647
10 To	„ 1 Koku	„ 410.4	„ 186.46471

## WEIGHTS.

<i>Japanese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes.
10 Mo	= 1 Rin	= .27006	= .0175
10 Rin	„ 1 Fun	„ 2.70066	„ .175
10 Fun	„ 1 Nomme	„ 27.0061	„ 1.75
4 Nomme	„ 1 Riu	„ 108.02644	„ 7
40 Riu	„ 1 Kin	„ 4321.0576	„ 280

In weights the word *Nomme* is used after all numbers except the multiples of 10, where it is contracted into *Me*.

## SINGAPORE.

The Weights and Measures of Great Britain are generally used in the purchase and sale of European Goods; but the following Weights and Measures are also in use :—

## MEASURES OF LENGTH.

<i>Systematic name.</i>	<i>English value.</i> Inches.	<i>Metric value.</i> Metres.
Covid (Cloth measure)	= 18	= .457191

## MEASURES OF SURFACE.

<i>Japanese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Acre.	<i>Metric value.</i> Ares.
20 Dschombas	= 1 Orlong	= 1.322	= 53.49741

## MEASURES OF CAPACITY.

Liquids, Grain, and Fruit, are sometimes sold by the *Gantang* of 2 Bamboos.

The *Gantang* = about 1·04 British Imperial Gallon, or 4·725226 Litres.

## WEIGHTS—(COMMERCIAL).

<i>Japanese value.</i>	<i>Systematic name.</i>	<i>English value.</i> lb. Av.	<i>Metric value.</i> Grammes. Kilogrammes.
16 Taels	= 1 Catty	= 1½	= 604·79
100 Catties	„ 1 Pecul	„ 133½	„ 60·479
40 Peculs	„ 1 Koyan	„ 5333½	„ 2419·16

Rice from Siam and the Malayan Archipelago, and Sago and Salt are sold by the Koyan, but Bengal Rice and Corn are sold by the Bag of 2 Imperial Maunds. The Bag is equal to 164½ lbs. av., or 74·628448 Kilogrammes.

## JEWELLERS' WEIGHTS.

<i>Japanese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes. Kilogrammes.
	1 Meiam	= 52	= 3·36954
16 Meiams	= 1 Boncal	„ 832	„ 53·91277
20 Boncals	„ 1 Catty	„ 16640	„ 1·07825

## JAVA.

## MEASURES OF LENGTH.

<i>Java value.</i>	<i>Systematic name.</i>	<i>English value.</i> Inches.	<i>Metric value.</i> Metres.
	1 Duim	= 1·3	= ·02616
12 Duims	= 1 Foot	„ 12·86	„ ·81894
	1 Ell	„ 27·08208	„ ·68781

The Ell and Foot given in the Table are the old Amsterdam Rheinland Foot and Ell, but the old Brabant Ell = 27·3384 English Inches, or ·6944 Mètre, and the English Yard are also used.

## MEASURES OF SURFACE.

The Djong of 4 Bahu = 7·0149 English Acres, or 2·8887267 Hectares.

## MEASURES OF CAPACITY—(FOR RICE AND GRAIN).

<i>Java value.</i>	<i>Systematic name.</i>	<i>English value.</i> lbs. av.	<i>Metric value.</i> Kilogrammes.
	1 Sack	= 61·084	= 27·684
2 Sacks	= 1 Pecul	,, 122·068	,, 55·369
5 Peculs	,, 1 Timbang	,, 610·3403	,, 276·844
6 Timbang or 30 Pecul	}, 1 Coyan	,, 3662·042	,, 1661·066

The Measures of Capacity are really vessels to contain definite Weights. Grain, in large quantities, is sold by the Coyan, and in small quantities by the Timbang. The Coyan contains in different places in the Island a variable number of Peculs, thus, at Batavia it contains 27, at Somarang 28, and at Soerabaya 30 Peculs. There is also, for small quantities, a measure called *Gantang*: 5 *Gantangs* make 1 Measure, and 46 Measures make 1 *Last*. The *Kulack* contains 7½ *Catties* Weight.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Java value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Gallons.	<i>Metric value.</i> Litres.
	1 Kan	= 82819	= 1·491142
888 Kans	= 1 Leager	,, 127·88772	,, 578·56809

Liquids are very often sold by Weight. The Leager is a measure for Arrack.

## WEIGHTS.

<i>Java value.</i>	<i>Systematic name.</i>	<i>English value.</i> lbs. av.	<i>Metric value.</i> Grammes. Kilogrammes.
	1 Tael	= 0848	= 38·4506
16 Taels	= 1 Catty	,, 1·356	,, 615·210
100 Catties	,, 1 Pecul	,, 135·6812	,, 61·5210
3 Peculs	,, 1 Small Bahar	,, 406·8986	,, 184·5631
4½ Peculs	,, 1 Large Bahar	,, 1881·0212	,, 7474·805

The Dutch Troy lb of 2 Marks is used in Foreign Trade. The Dutch Troy lb is equal to 7625 English Troy Grains. The Dutch Commercial lb is equal to 7576 English Troy Grains.

GOLD AND SILVER WEIGHTS.

<i>Java value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes.
	1 Real	= 422	= 27.8451
9 Reals	= 1 Dutch Mark, Troy „	3798	„ 246.1066

SUMATRA.

MEASURES OF LENGTH.

<i>Sumatra value.</i>	<i>Systematic name.</i>	<i>English value.</i> Inches.	<i>Metric value.</i> Metres.
	1 Tempo	= 4½	= .114297
2 Tempos	= 1 Junkal	„ 9	„ .228595
2 Junkals	„ 1 Etto	„ 18	„ .457191
2 Ettos	„ 1 Hailoh	„ 1	„ .914888
2 Hailohs	„ Depoh	„ 2	„ 1.828766
2 Depohs	„ Tung	„ 4	„ 3.657532

PHILIPPINE ISLANDS.

VIZ. :—

LUZON OR LUCONIA, MINDORO, PANAY, NEGROS,  
MASBATE, ZEBU, BOHL, LEYTE, SAMAR,  
MINDANAO.

MEASURES OF LENGTH.

<i>Local value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Line	= .67725	= .001962
12 Lines	= 1 Pulgada	„ .927	„ .028553
12 Pulgadas	„ 1 Pies	„ 11½	„ .282646
3 Pies	„ 1 Vara	„ 33½	„ .847938

The Vara is the chief Measure for Cloth, and 100 Varas are equal to 927088 English Yards. Cotton, and some other Goods, are sold by the English Yard.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Local value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Gallons.	Litres.
	1 Gantah =	= 879642	= 3·931
25 Gantahs =	1 Caban	„ 21·99107	„ 98·28

A Caban of Rice weighs about 123 lbs. av. English, or 55·7918775 Kilogrammes.

A Caban of Paddy (rice in the husk) weighs about 85 lbs. av. English, or 385553625 Kilogrammes.

## MEASURES OF CAPACITY FOR LIQUIDS.

Liquids are measured by the old English Wine Gallon and its subdivisions, for which, see the Article "Cape of Good Hope." Cocoa-nut Oil is measured by the Tinaja of 12 Gallons.

## WEIGHTS.

<i>Local value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
	1 Drachma =	= 55·4765	= 3·5947
8 Drachmas =	1 Ozo	„ 443·8125	„ 28·7583
8 Onzas	„ 1 Mark	„ 3550·5	„ 230·0666
		lbs. av.	
2 Marks	„ 1 Libbra	„ 1·01442	„ 460·1333
			Kilogrammes.
25 Libbras	„ 1 Arroba	„ 25·36050	„ 11·50333
4 Arrobas	„ 1 Quintal	„ 101·442	„ 46·01333
6 Arrobas	{ 1 Quintal Macho }	„ 152·163	„ 69·01930

The above are the old Spanish Weights (Castilian Standards). In the Wholesale Trade most Goods are sold by the following Weights:—

<i>Local value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
	1 Tael =	= 610·2371	= 39·5427
		lbs. av.	Kilogrammes.
16 Taels =	1 Catty	„ 1·3948	„ 63268
100 Catties	„ 1 Pecul	„ 139·4827	„ 63·2683

The Pecul of the Philippine Islands is larger than the Chinese Pecul, and is equal to 5½ Spanish Arrobas. 16 Peculs are commonly reckoned equal to 1 Ton English, although they are really less than 1 Ton by about 8½ lbs. av.; an English Ton being 2240 lbs. av., while 16 Peculs are only equal to 2231·7232 lbs. av.



## EGYPT.

(NUBIA, SENAAR, KORDOFAN, AND DORFUR.)

## MEASURES OF LENGTH.

<i>Egyptian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Inches.	<i>Metric value.</i> Metres.
	1 Kirat	= 1½	= .02857
6 Kirats	= 1 Rub	" 6½	" .17144
4 Rubs	" { 1 Diraá, Draá } or Pike	" 27	" .18577
4 Diraás	" 1 Gasab	" 3 Yards.	" 2.74301

In Egypt the Diraás in use are of different lengths.

The Diraá Istambuhli, or Pike of Constantinople, used for measuring Cloth and European Silk = to 26.65404 English Inches, but in Practice it is reckoned at 27 Inches.

The *Belendi Pike* used for measuring Syrian Silks and Native Fabrics = 22.7369 English Inches, or .5775 of a French Mètre.

The *Endaseh* for measuring Cotton and Linen Goods = 25.18425 English Inches, or .6384 of a French Mètre.

The *Nilmesser*, or *Pike Mekias* = 21.28778 English Inches, or .5407 of a French Mètre.

In Nubia the Diraá = 26.65404 English Inches, or .6775 Mètre.

In Malakha, the distance from one Station to another, is an indefinite Measure varying from 2 to 6 Miles.

## MEASURES OF SURFACE.

<i>Egyptian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Acres.	<i>Metric value.</i> Ares.
400 Sq. Gasab	= 1 Feddan	= 1.1019	= 44.591

This Feddan is now the legal one both in Egypt and Nubia, but there are other Feddans in use varying in value. Thus the *Feddan al risach* is equal to 3208 English Square Yards.

## MEASURES OF CAPACITY.

<i>Egyptian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
2 Rubba	= 1 Queleh	=	} See below.
2 Queleh	„ 1 Wehbih	„	
6 Wehbih	„ 1 Ardeb	„	
2 Ardeb	„ 1 Daribba	„	

In Alexandria the Ardeb = 7.4457 British Imperial Bushels, or 271 French Litres.

In Cairo the Ardeb = 4.92461 British Imperial Bushels, or 179 French Litres, but its value is usually taken in round numbers at 5 Imperial Bushels, or about 182 Litres.

In Nubia the Ardeb = 5.00699 British Imperial Bushels, or 182 French Litres, there is also the Mörrhi divided into 12 Mauds, or 216 Selgas, and equal to 7.70306 British Imperial Bushels, or 280 Litres.

In Rosetta the Ardeb divided into 12 Rub, or 48 Kaddah, = 7.8131 British Imperial Bushels, or 284 Litres.

## WEIGHTS.

In Egypt the unit of Weight is the Dirhem (Dram or Drachm.) which = 47.6615 English Troy Grains, or 3.0884 Grammes. The Weights are of two classes, viz.: (1) the *Rottolo Weight*, and (2) the *Oka Weight*.

## THE ROTTOLO WEIGHTS.

<i>Egyptian value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Dirhem	= 47.6615	= 3.0884
12 Dirhem	= 1 Uckieh	„ 571.9380	„ 37.0608
12 Uckieh	„ 1 Rottolo	„ 98046	„ 444.7296
100 Rottoli	„ 1 Cantar	„ 980465	„ 4447.296

The Rottolo given in the Table is the *Government Rottolo*, and is used in Alexandria and Cairo.

The *Rottolo Forforo* of 140 Dirhem ( $\frac{1}{7}$  of an Oka,) = .95323 lbs. av. English, or 432.376 Grammes. 70 Government Rottoli = 72 Forfori Rottoli.

The *common commercial Rottolo* of the Markets of Alexandria and Cairo, containing 1.5 Dirhems = .71492 lbs. av. English, or 324.282 Grammes.

The great Rottolo of Alexandria, contains 312 Dirhems, and is equal to 2·12434 lbs. av. English, or 963·5808 Grammes.

The great Rottolo of Cairo, contains 324 Dirhems, and is equal to 2·20604 lbs. av. English, or 1·00064 Kilogrammes.

The Special Commercial Rottolo of Cairo, contains 150 Dirhems, and is equal to 1·02132 lbs. av., or 463·26 Grammes.

The Rottolo Zaidino of 200 Dirhems (=  $\frac{1}{4}$  Oka) = 1·361757 lbs. av., or 617·68 Grammes.

The Rottolo Mina of 250 Dirhems (=  $\frac{1}{3}$  Oka) = 1·7022 lbs. av., or 772·10 Grammes.

The Rottolo Zauro of 310 Dirhems (=  $\frac{1}{11}$  Oka) = 2·11073 lbs. av., or 957·4040 Grammes.

### THE OKA WEIGHTS.

<i>Egyptian value.</i>	<i>Systematic name.</i>	<i>English value.</i> lbs. av.	<i>Metric value.</i> Kilogrammes.
400 Dirhems =	The Common Oka =	2·72351	= 1·23536
420 Dirhems	„ { The Commercial Oka }	„ 2·85969	„ 1·29712
412 Dirhems	„ { The Alexandria Commercial Oka }	„ 2·80522	„ 1·27249

### JEWELLERS' WEIGHTS.

<i>Egyptian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes.
	1 Kömmhah =	·74471	= ·04825
4 Kömmhah =	1 Kirat	„ 2·97884	„ ·19303
16 Kirats	„ 1 Dirhem	„ 47·6615	„ 3·0884

The Kirat is the unit of Weight for Precious Stones.

Pearls, Gold-thread, and Raw Silk are sold by the *Metical*, (also called Mikal or Miskal,) equal to  $1\frac{1}{2}$  Dirhems, or 71·4922 English Troy Grains, or 4·6326 Grammes.

## TRIPOLI.

### MEASURES OF LENGTH.

The Turkish Pike for Silk and Cotton Goods is equal to 26·4168 English Inches, or ·671 Mètre.

The Arabian Dhraa for Ribbons = 19·13 English Inches, or ·483 Mètre.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Tripoli value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Gallons.	Litres.
	1 Orbah =	1.4760 =	6.70618
4 Orbah	= 1 Temen	5.9040	26.82474
		Imperial Bushels.	
4 Temen	„ 1 Hueba	2.9520	107.29899

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Tripoli value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Quarts.	Litres.
4 Quartucci =	1 Bozze =	2.36185 =	2.68274
4 Bozze	„ 1 Secchie	„ 2.36185	„ 10.73098
6 Secchie	„ 1 Barile	„ 14.1711	„ 64.3859

These Liquid Measures are used for Wines and Spirits.

The Oil Barile is divided into 6 Arbaia, or 36 Caraffas, each Caraffe being equal to 1.6345 British Imperial Quarts, or 1.78849 Litres.

## WEIGHTS.

<i>Tripoli value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Oz. Av.	Grammes.
37½ Dirhem =	1 Uckiah =	1.076 =	30.504095
16 Uckiah	„ 1 Rottolo	„ 1.076	„ 488.06553
2½ Rottolo	„ 1 Oka	„ 2.6916	„ 1.2201638
40 Oka or	} „ 1 Centner	„ 107½	„ 48.80655
100 Rottolo			

The Rottolo given in the Table is the common Rottolo.

The great Rottolo contains 720 Dirhems, and is equal to 1.2912 lbs. av., or 585.67868 Grammes.

5 great Rottoli are equal to 6 common Rottoli.

## JEWELLERS' WEIGHTS.

<i>Tripoli value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
24 Kharub =	1 Metical Mumini =	70.65 =	4.578

The Metical Mumini and Kharub are used in weighing Gold Coin and Jewellery. The Metical Akdesi used in weighing Gold Dust and Gold Bullion is equal to 62.80 Troy Grains, or 4.069 Grammes. 9 Meticals Akdesi = 8 Meticals Mumini.

The Uckiah, with the following subdivisions, is used in weighing Gold Lace, Gold Thread, and Silver:—

<i>Tripoli value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains.	<i>Metric value.</i> Grammes.
16 Kharub	= 1 Dirhem	= 47·2	= 3·052
10 Dirhems	„ 1 Uckiah	„ 472	„ 30·52

## TUNIS.

## MEASURES OF LENGTH.

The Dhraâ, or Pike, is the unit of Measures of Length. There are three kinds of Dhraâ in common use, viz. :—

	<i>Systematic name.</i>	<i>English value.</i> Inches.	<i>Metric value.</i> Metres.
(1) The Arabian Dhraâ, for Cotton Goods	} —	19·2240	·4883
(2) The Turkish Dhraâ, for Lace, and Gold and Silver Lace	} „	25·0776	·637
(3) The Dhraâ Endaseh, for Wool-len Goods	} „	26·4888	·6728

The Measure of Distance is the *Mil Sah'eli*, or *Mil Sah'ari*, equal to 1610·3746 Yards, or ·9149 Mile English, or 1·4725 Kilomètres.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Tunis value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pint. Imperial Gallons. Imperial Quarters.	<i>Metric value.</i> Litres.
	1 Sââ	= 1·27426	= 2·583
12 Saâ	= 1 Hueba	„ 6·8228	„ 30·996
16 Hueba	„ 1 Kafis	„ 1·7057	„ 495·936

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Tunis value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pint. Imperial Gallons.	<i>Metric value.</i> Litres.
	1 Pichoune	= ·4654	= ·2643
4 Pichounes	= 1 Pot	„ 1·86163	„ 1·05718
15 Pots	„ 1 Escandeu	„ 3·49057	„ 15·859
4 Escandeaux,	1 Millérole	„ 13·9623	„ 63·437

The Millérole and its subdivisions, are used in wholesale business, but for domestic purposes the Liquid Measure in general use is the Mettar, with its divisions as follows:—

<i>Tunis value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Saâ	= 1·0740 Imperial Pints.	= 60998 Litres.
8 Saâ	= 1 Kolleh	,, 1·0740 Imperial Gallons.	,, 4·8797
2 Kolleh	,, 1 Mettar	,, 2·1480	,, 9·75941
6½ Mettar	,, 1 Millérole	,, 13·9623	,, 63·437

For Oil Measure the Mettar = 4·4372 British Imperial Gallons, or 20·16 Litres. The Kolleh = 2·2186 British Imperial Gallons, or 10·08 Litres, and the Saâ = 2·2186 British Imperial Pints, or 1·26 Litres. The Mettar of Susa = 5·546 British Imperial Gallons, or 25·2 Litres.

## WEIGHTS.

<i>Tunis value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Kharub	= 3·0556 Troy Grains.	= 198 Grammes.
16 Kharub	= 1 Derhem	,, 48·890625	,, 3·168
10 Derhems	,, 1 Uckiah	,, 488·90625	,, 31·68
16 Uckieh	,, 1 Rottel Attari	,, 1·1175 lbs. av.	,, 506·88
100 Rottel Attari	} ,, 1 Cantar Attari	,, 111½	,, 50·688 Kilogrammes.

The Cantar Attari given in the Table is the *common* Cantar Attari, and is used for Iron, Lead, Copper, Tin, Silver, and Gold.

The Cantar Attari for Raw Cotton = 110, and for Cotton Yarn 150 Rotteli Attari.

The *Rottel Saki* contains 18 Uckieh, and is used for Oil, Soap, Ghee, Olives, Honey, Wood, Coals, and Fruit. It is equal to 1·2532 lbs. av. English, or 568·445 French Grammes.

The *Rottel Ghaddari* used for Herbs and Vegetables, contains 20 Uckieh, and is equal to 1·4098 lbs. av. English, or 639·453 Grammes.

The Uckiah, Derhem, and Kharub, are used for Gold, Silver, and Jewels.

## ALGERIA.

The Weights and Measures are the same as those of France, the *Mètric System* having come into use in 1843. (See France.)

## MOROCCO.

## MEASURES OF LENGTH.

<i>Morocco value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Inches.	Metres.
	1 Tomin	= 2·81025	= ·07806
8 Tomin	= 1 Dhra'a	„ 22·482	„ ·6245

## MEASURES OF CAPACITY.

<i>Morocco value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Gallons.	Litres.
	1 Muhd	= 3·08135	= 3½
4 Muhds	= 1 Saâ	„ 12·32541	„ 14

Oil is sold by the Kula, which weighs 22 Rotal, (of Morocco,) and is equal to about 3·335565 British Imperial Gallons, or 15·155 Litres.

Other Liquids are sold by Weight.

## WEIGHTS.

<i>Morocco value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
	1 Uckiah	= 392	= 25·40121
20 Uckieh	= 1 Rotal or Artal	„ 1·12	„ 508·02416
100 Rotales	„ 1 Kintar	„ 112	„ 50·802416

The Kintar given in the Table is the common *Kintar*.

The *Great Kintar* (for Meat, Butter, Oil, and Soap,) containing 125 Rotales, is equal to 140 lbs. av. English, or 63·50802 Kilogrammes.

The *Salle Rabat Kintar*, containing 150 Rotales, is equal to 168 lbs. av. English, or 76·203624 Kilogrammes.

The *Zoll Kintar* being the weight of 1680 old Spanish Silver Dollars, is equal to 99·8954 lbs. av. English, or 45·3116227 Kilogrammes.

## ABYSSINIA.

## MEASURES OF LENGTH.

The chief Measure of Length is the Turkish *Pike* = 27 Inches English, or ·686 Mètre. (See Turkey.)

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Abyssinian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pints.	<i>Metric value.</i> Litres.
12 Dirhems	= 1 Uckieh	= 0.645	= 0.366
12 Uckiehs	„ 1 Madega	„ 7.747	„ 4.40
10 Madegas	„ 1 Ardeb	„ 7.7473	„ 4.40

The above is the Ardeb of Gondar. The Ardeb of Massowah contains 24 Madegas, and is equal to about 2.3242 British Imperial Gallons, or 10.56 Litres.

The Kuba = 1.7888 British Imperial Pints, or 1.0159 Litre.

## WEIGHTS.

<i>Abyssinian value.</i>	<i>Systematic name.</i>	<i>English value.</i> Grains Troy.	<i>Metric value.</i> Grammes.
	1 Dirhem	= 40	= 2.5919
10 Dirhems	= 1 Wakih	„ 400	„ 25.9191
12 Wakiehs	„ 1 Botolo	„ 4800	„ 311.033

The *Mocha* is a weight containing 12 Dirhems, and equal to 4.80 Grains, or 1 oz. Troy English, or 31.1083 Grammes.

## WEST COAST OF AFRICA.

In the British settlements of *Bathurst*, *Fort James*, *Sierra Leone*, and *Cape Coast Castle*, the British Weights and Measures are used.

## MEASURES OF CAPACITY.

The *Ardeb* is the chief Measure of Capacity for Dry Goods. The *Gondar Ardeb* contains 10 Madegas, or 120 Uckieh, or 1440 Dirhems, and is equal to about 7.7473 British Imperial Pints, or 4.40 French Litres. The *Massuah Ardeb* contains 24 Madegas, and is equal to about 2.3242 British Imperial Gallons. The *Kuba* is the chief Liquid Measure. It is equal to about 1.7887 British Imperial Pints.

## WEIGHTS.

<i>Ginea value.</i>	<i>Systematic name.</i>	<i>English value.</i> Grains Troy.	<i>Metric value.</i> Grammes.
	1 Aki	= 7.7304	= 5.509
16 Akis	= 1 Usano (or Peso)	„ 123.6875	„ 8.0143
8 Usanos	„ 1 Benda	„ 989.5	„ 64.114



The *Kantar* for Gum, which is divided into 5 *Gamell*, is equal to about 19·27109 cwt. English, or 979 Kilogrammes.

Gold is bought and sold by *Usanos*, each of 16 *Akis*. A *Usano* of Gold is reckoned equal in value to 16000 "Cowries." It contains 314·76 English Troy Grains, or 20·896 Grammes.

## EAST COAST OF AFRICA.

### (I).—Mozambique and Sofala.

The Weights and Measures are the old Weights and Measures of Portugal. (See the Article, Brazil.)

There is also the common *Bahar*, divided into 80 *Frehsails*, and equal to about 240 lbs. av. English, or 108·8622 Kilogrammes. The *Frehsail* = 8 lbs. av. English, or 3·62874 Kilogrammes.

### (II).—Madagascar.

#### MEASURES OF LENGTH.

The *Refe* = from 1 to 2 Mètres = 39·87079 to 78·74158 Inches English.

#### WEIGHTS.

The *Monscha* = 6·61398 lbs. av., and the *Satu* = 54·01417 lbs. av. of Husked Rice.

Gold is sold by the *Sompi*, with the following subdivisions:—

Local value.	Systematic name.	English value. Troy Grains.	Metric value. Grammes.
	1 <i>Nanqui</i>	= 4·917725	= 3186
2 <i>Nanquis</i>	= 1 <i>Sacare</i>	„ 9·83545	„ 6373
2 <i>Sacares</i>	„ 1 <i>Wari</i>	„ 19·6709	„ 12746
3 <i>Wari</i>	„ 1 <i>Sompi</i>	„ 59·0127	„ 3824

### (III).—Bourbon.

The legal Weights and Measures are those of the French *Mètric* system, (see France); but the Weights and Measures of the "Ancient System" of France are also occasionally used. (See "Ancient System" of France, as given under "Mauritius.")

## (IV).—Mauritius.

The present legal Weights and Measures are those of Great Britain, (see Great Britain); but in commercial transactions in the interior, the Weights and Measures of the "Ancient System" of France are used. These are as follows:—

**Ancient System of France.****MEASURES OF LENGTH.**

<i>Old French value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
12 Pointes	= 1 Ligne	= 1·06575 Lines.	= 2·25583 Millimetres.
12 Lignes	„ 1 Pouce	„ 1·06575 Inches.	„ 2·70699 Centimetres.
12 Ponces	„ 1 "Pied de Roi"	„ 12·789	„ 3·248394 Decimetres.
3½ Pieds or 44 Pouce }	„ 1 Aune	„ 46½	„ 1·18845 Metres.
6 Pieds	„ 1 Toise	„ 2·1315 Yards.	„ 1·94903
3 Toises	„ 1 Perche	„ 6·3945	„ 5·84711 Kilometres.
2000 Toises	„ 1 "Lieu de Poste"	„ 2·4221 Miles.	„ 3·898

The Woollen Drapers' Aune was equal to 1·182 Mètre, or 46·53627 English Inches.

The Mercers' Aune was equal to 1·18845 Mètre, or 46·79021 English Inches.

The Perche given in the Table was the Paris Field Measure Perche. It contained 18 Pieds.

The Crown Lands' Perche contained 22 Pieds, and equalled 7·14647 Mètre, or 7·8155 English Yards.

The Provincial Land Measure Perche contained 20 Pieds, and equalled 6·49679 Mètre, or 7·105 English Yards.

The Marine Lieu of 20 to the degree was equal to 5·555 Kilomètres, or 3·4522 Miles English.

The Lieu of 25 to the degree was equal to 4·444 Kilomètres, or 2·7613 English Miles.

## MEASURES OF SURFACE.

<i>Old French value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Square Yards.	Square Metres.
144 Sqr. } Pouces }	{ 1 Sqr. } { Pied }	=	
		1262084	= 1055206
324 Sqr. } Pieds }	{ 1 Sqr. } { Perche }	"	
		40·891541	" 34·188685
100 Sqr. } Perches }	{ 1 Arpent }	= { 4089·154095 }	= { 3418·868599 }
		Acres. or 84484	Acres. or 34·188685

The Square Perche was of 3 kinds, viz. :—

(1) The Paris Field Measure Square Perche (that given in the Table) = 324 (= 18 × 18) Square Pieds.

(2) The Crown Lands' Square Perche of 484 (22 × 22) Square Pieds, and equal to 61·0848656 English Square Yards, or 51·07198 Square Mètres.

(3) The Provincial Land Measure Square Perche of 400 (20 × 20) Square Pieds, and equal to 50·48336 English Square Yards, or 42·20825 Square Mètres.

In like manner, the Arpent, which always consisted of 100 Square Perches, was of three different kinds, according to the value of the Square Perche, viz. :—

(1) The Arpent de Paris of 100 Square Perches, each of 324 Square Pieds, which is that given in the Table.

(2) The Arpent "Des eaux et des Forêts," otherwise called Arpent "D'ordonnance," of 100 Square Perches, each of 484 Square Pieds, and equal to 6108·48656 English Square Yards, or 1·262 British Imperial Acres, or 51·07198 Ares.

(3) The Arpent "Commun" of 100 Square Perches, each of 400 Square Pieds, and equal to 5048·336 English Square Yards, or 1·043 British Imperial Acre, or 42·20825 Ares.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Old French value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Pints.	Litres.
	1 Litron	=	1·431526 = 81301
16 Litrons	= 1 Boisseau	"	357881 " 13·0083
3 Boisseaux	" 1 Minot	"	1·073644 " 39·0249
2 Minots	" 1 Mine	"	2·147289 " 78·0498
2 Mines	" 1 Setier	"	4·294578 " 156·0996
12 Setiers	" 1 Muid	"	51·534949 " 1873·1952

The Setier was of four different kinds, viz. :—

(1) The Setier was of 12 Boisseaux (as given in the Table,) for Wheat, Rye, Barley, Flour, Pulse, Seeds, and Lime.

(2) The Setier of 24 Boisseaux, for Oats, equal to 8·58714 British Imperial Bushels, or 312·1992 Litres.

(3) The Setier of 16 Boisseaux, for Salt, equal to 5·72600 British Imperial Bushels, or 208·1328 Litres.

(4) The Setier of 32 Boisseaux, for Wood-charcoal, equal to 11·45218 British Imperial Bushels, or 416·2655 Litres.

### MEASURES OF CAPACITY FOR LIQUIDS.

<i>Old French value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Pints.	Litres.
2 Chanpines =	1 Pinte =	1·6398395 =	·9313178
2 Pintes	„ 1 Quart „	3·2796791 „	1·862356
4 Quarts	„ 1 Setier „	Imperial Gallons. 1·6398395 „	7·449424
36 Setiers	„ 1 Muid „	59·0342255 „	268·179264

### WEIGHTS.

<i>Old French value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Centigrammes.
	1 Grain =	·8197 =	5·3114
24 Grains =	1 Denier „	19·674 „	1·2747
3 Deniers „	1 Gros „	59·0234 „	3·8242
8 Gros „	1 Once „	472·1875 „	30·59411
18 Onces „	1 Marc „	3777·5 „	244·75292
2 Marc „	{ 1 Livre (Paid) } „	lbs. Av. 1·079 „	489·50585
100 Livres „	1 Quintal „	107·928 „	Kilogrammes. 48·95

In Gold Assay Weight, the Marc was divided into 24 Carats, and each Carat into 32 Parts.

In Silver Assay Weights, the Marc was divided into 12 Deniers, and each Denier into 24 Grains.

Jewels and Pearls were weighed by Carats, each divided into 4 Grains.

The Jewel and Pearl Carat was equal to 3·876 old Paris Grains, or to 20·5869 Centigrammes, or to 3·1771 English Troy Grains.

CAPE OF GOOD HOPE.

MEASURES OF LENGTH.

The Measures of Length are partly those of Great Britain, (see Great Britain); and partly the old Dutch Measures.

The Amsterdam old Rheinland Fuss = 1.080 English Foot, or .818987 Mètre, and the Elle = 2.2566 English Feet, are also in use; 4 Elles being reckoned equal to 3 Yards English. A Ruthe is 18, and a Fathom 6 Feet.

MEASURES OF SURFACE.

The old Amsterdam Morgen and the English Acre, are the chief denominations of Surface Measure. 1 Morgen is reckoned equal to 2 English Acres, but the exact value of the Morgen is 2.0087 Acres English, or .687798 Mètre.

MEASURES OF CAPACITY FOR DRY GOODS.

The Imperial Measures of Great Britain are used to some extent, but the old Winchester Bushel and Quarter, with their subdivisions, and some old Dutch Measures, are those in most general use. They are as follows:—

<i>Cape value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Pint.	Litres.
4 Gills	= 1 Pint	= .969447	= .55057
2 Pints	„ 1 Quart	„ 1.9388	„ 1.10115
4 Quarts	„ 1 Gallon	„ .969447	„ 4.40462
2 Gallons	„ 1 Peck	„ 1.9388	„ 8.80925
4 Pecks	„ 1 Bushel	„ .969447	„ 35.287
4 Bushels	„ 1 Coomb	„ 3.8777	„ 140.948
2 Coombs	„ 1 Quarter	„ .969447	„ 2.81896
5 Quarters	„ 1 Wey or Load	„ 4.8472	„ 14.09480
2 Weys	„ 1 Last	„ 9.6944	„ 28.18960

Approximately, 88 Winchester Bushels or Quarters are equal to 82 Imperial Bushels or Quarters.

<i>Cape value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
	1 Amsterdam Schepel } =	Imperial Gallons. 6·1316 =	Litres. 27·81341
3 Amsterdam Schepel } =	1 Zak	Imperial Bushels. 2·2956	33·44023
4 Amsterdam Schepel } =	1 Mud	3·0608	111·25364
10 Mudden	1 Last	30·608	1112·5364

### MEASURES OF CAPACITY FOR LIQUIDS.

The old British Wine and Ale Measures, and the old Dutch Liquid Measures, are those in use. They are as follows:—

#### Old British Wine and Spirit Measures.

<i>Old English value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
4 Gills	= 1 Pint	Imperial Pints. = 833111 =	Litres. ·47312
2 Pints	1 Quart	1·66622	·94625
4 Quarts	1 Gallon	Imperial Gallons. ·83111	3·785
10 Gallons	1 Anker	8·33111	37·85
18 Gallons	1 Rundlet	14·9959	68·13
42 Gallons	1 Tierce	34·9906	158·97
1½ Tierce or 63 Gallons }	1 Hogshead	52·485	Hectolitres. 2·38455
1½ Hogsheads or 84 Gallons }	1 Puncheon	69·981	3·1794
2 Hogsheads	{ 1 Pipe, Butt, or Puncheon }	104·971	4·76910
2 Pipes	1 Tun	209·943	8·5382

The old British Wine Gallon is about  $\frac{1}{4}$ th less than an Imperial Gallon: so that 5 Imperial Gallons are equal to 6 Wine Gallons. To convert Wine Gallons into Imperial Gallons, subtract  $\frac{1}{4}$ th from the Wine Gallon; and to convert Imperial Gallons into Wine Gallons, add  $\frac{1}{4}$ th to the Imperial Gallon. To convert prices per Wine Gallon into prices per Imperial Gallon, add  $\frac{1}{4}$ th or 20 per Cent. to the price per Wine Gallon, and to convert prices per Imperial Gallon into prices per Wine Gallon, subtract  $\frac{1}{4}$ th from the price per Imperial Gallon.

**Old British Ale, Beer, and Porter Measures.**

<i>Old English value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Pints.	Litres.
4 Gills =	1 Pint =	1·017045 =	·5771
2 Pints	„ 1 Quart	Imperial Quart. 1·017045 „	1·1542
4 Quarts	„ 1 Gallon	Imperial Gallons. 1·017045 „	4·6209
9 Gallons	„ 1 Firkin	9·158405 „	41·5881
2 Firkins	„ 1 Kilderkin	18·30681 „	83·1762
2 Kilderkins	„ 1 Barrel	36·61362 „	166·3524
8 Kilderkins	„ 1 Hogshead	54·92043 „	Hectollitres. 2·495286
2 Hogsheads	„ 1 Butt	109·84086 „	4·990572
2 Butts	„ 1 Tun	219·68172 „	9·981144

**Old Dutch Liquid Measures.**

<i>Old Dutch value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Pint.	Litres.
4 Maatjes =	1 Pintje =	1·067625 =	·606342
2 Pintjes	„ 1 Mengel	Imperial Gallons. ·266906 „	1·212685
2 Mengeln	„ 1 Stoop	·533812 „	2·425370
8 Stooopen	„ 1 Steekan	4·2705 „	19·402961
2 Steekanen	„ 1 Anker	8·541 „	38·805922
4 Anker	„ 1 Aam	34·164 „	155·223689

**WEIGHTS.**

The Weights in use are the Avoirdupois and Troy Weights of Great Britain, (see Great Britain); the old Amsterdam Pfund, of 32 Loth or 128 Drachmen, = 1·0893 lb. av. English, or 494·09831 Grammes.

92 old Amsterdam lbs. are reckoned equal to 100 lbs. av. English. There is also the old Dutch Troy Pfund of 2 Marken, 8 Unzen, or 320 Engelsen = 1·08506 lb. av. English, or 492·175078 Grammes.

**ST. HELENA.**

The Weights and Measures are the same as those of Great Britain. (See Great Britain.)

**BRITISH NORTH AMERICA.**

viz. :—

CANADA, NOVA SCOTIA, NEW BRUNSWICK, PRINCE EDWARD'S ISLAND, LABRADOR, THE BERMUDAS, PRINCE RUPERT'S LAND, NEWFOUNDLAND, and BRITISH COLUMBIA.

The Measures of Length and Surface and the Weights are the same as those of Great Britain. (See Great Britain.)

The Measures of Capacity are the old British Measures for Dry Goods, for Wine and Spirits, and for Ale, given under the Article "Cape of Good Hope."

The old Paris Minot (of 3 Boisseaux) = to 1·07368 British Imperial Bushel, or 39·0260089 Litres, is sometimes used as a Measure of Capacity for Grain.

**UNITED STATES OF NORTH AMERICA.****MEASURES OF LENGTH AND DISTANCE.**

The Measures of Length and Distance are the same as those of Great Britain. (See p. 106.)

**MEASURES OF SURFACE.**

The Measures of Surface are the same as those of Great Britain. (See p. 106.)

**MEASURES OF CAPACITY.**

The Measures of Capacity for Dry Goods and Liquids are the same as those used in England, before the introduction of the Imperial System, and are as follows :—



CANADA—p. 264.

The Metric System of Weights and Measures (see France pp. 119-122) has been made permissive and adopted concurrently with the British Imperial System of Weights and Measures

city for Dry

			Imperial value.	Metric value.
		Imperial Pint.	147	= 55057 Litres
		88	147	110115
		Imperial Gallon.	147	440462
		88	147	880925
2 GALLONS		Imperial Bushel.	147	35237
4 Pecks	1 Bushel	Imperial Quarters.	38777	140948 Hectolitres
4 Bushels	1 Coomb	Imperial Quarters.	96947	281896
2 Coombs	1 Quarter	Imperial Quarters.	48472	1409480
5 Quarters	1 Wey or Load	Imperial Quarters.	96944	2818960
2 Weys	1 Last			

UNITED STATES OF NORTH AMERICA—p. 264.

In 1866 the Metric System of Weights and Measures (see France, pp. 119-122) was legalised concurrently with the whole system.

2 Hogsheads	{ 1 Pipe, Butt, or Puncheon }	104971	47891
2 Pipes	1 Tun	209948	95882

### Old British Ale, Beer, and Porter Measures.

<i>United States value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
4 Gills	= 1 Pint	Imperial Pinta. = 1·017045 =	Litres. ·5776
2 Pints	„ 1 Quart	Imperial Quart. „ 1·017045 „	1·1552
4 Quarts	„ 1 Gallon	Imperial Gallons. „ 1·017045 „	4·6209
9 Gallons	„ 1 Firkin	„ 9·153405 „	41·5881
2 Firkins	„ 1 Kilderkin	„ 18·30681 „	83·1762
2 Kilderkins	„ 1 Barrel	„ 36·61362 „	Hectolitres. 1·663524
3 Kilderkins	„ 1 Hogshead	„ 54·92043 „	2·495286
2 Hogsheads	„ 1 Butt	„ 109·84086 „	4·990572
2 Butts	„ 1 Tun	„ 219·68172 „	9·981144

### WEIGHTS.

The Weights are the same as those of Great Britain, (see p. 106); but articles formerly sold by the hundredweight (cwt.) are now almost always sold by the *Quintal* or *Centner* of 100 lbs. av. English. The Barrel of Flour contains 196 lbs. av.; the Barrel of Indian Corn,  $178\frac{1}{2}$  lbs. av.; the Barrel of Pickled Beef or Pork, 200 lbs. av.; and the Hogshead of Indian Meal, 800 lbs. av.

### MEXICO.

The Weights and Measures are the old Weights, and Measures in use in Spain previous to the adoption of the Metric System in that country in 1859. (See Spain, p. 167.)

### CENTRAL AMERICA.

The Weights and Measures are the same as those of Mexico. In British Honduras the British Weights and Measures are in use.

### WEST INDIES—(BRITISH).

The Weights and Measures are the same as those of Great Britain. (See p. 106.) In spite of Legislative enactments and prescribed penalties, great irregularities as to weights and measures exist (1867). A source of great complaint on the part of the lower orders in Jamaica.

**WEST INDIES—(DANISH).**

The Weights and Measures are those of Denmark. (See p. 173).

**WEST INDIES—(SPANISH).**

The Weights and Measures of Spain are also the legal ones for the Spanish West Indies, but the old Spanish Weights and Measures are still used. (See p. 167).

**WEST INDIES—(DUTCH).**

The present Weights and Measures of Holland, (see p. 171), are being introduced, but the old Amsterdam Weights and Measures referred to in the article "Cape of Good Hope," (see p. 261), are still in use.

**WEST INDIES—(SWEDISH.)**

The Weights and Measures are the same as those of Sweden. (See p. 177.)

**WEST INDIES—(FRENCH).**

The Weights and Measures are those of France. (See p. 119).

**HAYTI, or ST. DOMINGO.**

The Weights and Measures are those at present in use in France, (see p. 119), but the old French Weights and Measures, although prohibited, are still to some extent in use. (See Bourbon, p. 257).

**UNITED STATES OF COLOMBIA.**

VIZ. :

NEW GRENADA, VENEZUELA, and ECUADOR, or  
QUITO.

The Weights and Measures are the same as those of France, (see p. 119), the Metric system having been introduced in 1857. Previous to that date the old Spanish (Castilian) Weights and Measures were these in use; (see Spain, p. 167) and these are still used to some extent.

**BRITISH GUIANA.**

The Measures of Length and Surface, and the Weights are the same as those of Great Britain (see pp. 106—114). The Measures of Capacity are the old British Measures (superseded by the Imperial system) quoted in the articles "Cape of Good Hope," and "United States of North America" (see p. 261—264).

**FRENCH GUIANA, or, CAYENNE.**

The Weights and Measures are those of the "Ancient System" of France, quoted in the article "Bourbon" (see p. 257).

**DUTCH GUIANA, or SURINAM.**

The present Weights and Measures of Holland are being introduced (see p. 171); but the old Amsterdam Weights and Measures, as given in the article "Cape of Good Hope," are still in use (see p. 261).

**BRAZIL.**

The Weights and Measures are, with some variations in value and name, those of the old System of Portugal, as follows:—

## MEASURES OF LENGTH.

<i>Old Portuguese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
10 Pontos	= { 1 Linha or Line } =	Inches. ·091186 =	Metres. ·0023148
8 Linhas	„ 1 Dedo „	·729068 „	·0185185
12 Linhas	„ 1 Pollegada „	1·098683 „	·02777
8 Pollegadas	„ 1 Palmo „	8·749064 „	·22222
12 Pollegadas	„ 1 P6 „	13·1235966 „	·33333
3 Palmos	„ 1 Covado „	26·2471933 „	·66666
5 Palmos	„ 1 Vara „	Yards. 1·215147 „	1·11111
1½ Varas	„ { 1 Passo Geome- trico } „	1·8227217 „	1·66666
2 Varas	„ 1 Braça „	2·480295 „	2·22222
117½ Braças	„ 1 Estadio „	285·2357027 „	260·6148
8 Estadios or 9389½ Palmos } „	1 Milha „	Miles. 1·29652 „	Kilometres. 2·0865185
3 Milhas, or 2816½ Braças, or 28168 Palmos } „	1 Legoa* „	3·86956 „	6·2595

6 English Yards are reckoned equal to 5 Varas, and 3 Yards to 4 Covados. The P6 is ¼ of a Mètre, and 100 Mètres = 148 Covados.

## MEASURES OF SURFACE.

<i>Old Portuguese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
64 Sq. Pollegadas =	1 Sq. Palmo =	Square Yards. ·05906337 =	Square Metres. ·04988271
25 Sq. Palmos	„ 1 Sq. Vara „	1·476584271 „	1·23456791
4 Sq. Varas	„ 1 Sq. Braça „	5·90638708 „	4·98827161
4840 Sq. Varas	„ 1 Geira „	Acres. 1·476584271 „	Hectares. 2·89012345

\* The Legoa is sometimes estimated at 3,000 braças; this would give its value as 7290·837084 yards, or 4·1425 miles English, or 6666½ Mètres, or 6½ Kilometres, but that is more than its real value.

## MEASURES OF CAPACITY FOR DRY GOODS.

<i>Old Portuguese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Gallons.	Litres.
2 Salamines	= 1 Oitavo	= .380794	= 1.7301
2 Oitavo	„ 1 Quarto	„ .761589	„ 3.4602
4 Quartas	„ 1 Alqueira*	„ Imperial Bushel. .380794	„ 13.841
4 Alqueiras	„ 1 Fangas	„ 1.523179	„ 55.364
15 Fangas	„ 1 Moio	„ Imperial Quarters. 2.855961	„ Hectolitres. 8.3046

The Measures of Capacity were not the same for the whole of Portugal. The values given in the table are those of the Lisbon Measures. At Oporto the Moio = 28.173, the Fanga 1.8782, and the Alqueira .4696 British Imperial Bushels.

100 Moios, Fangas, Alqueiras, &c., of Lisbon, were reckoned equal to 79½ Moios, Fangas, Alqueiras, &c., of Oporto. The Fanga of Oporto was equal to 1.922 British Imperial Bushel, or 69.86 Litres, and its subdivisions and multiples in like proportions. Also 5½ Alqueiras of Oporto were commonly reckoned in practice, equal to 1 Hectolitre, and 16 Alqueiras to 1 British Imperial Quarter.

In Rio Janeiro the Alqueira = 40 French Litres, or 1.10048 British Imperial Bushel; and 1 Alqueira of Rio Janeiro is reckoned equal to 3 Alqueiras of Lisbon.

In Bahai the Alqueira is equal to 2½ Alqueira of Lisbon, or .82536 British Imperial Bushel, or 31.142 Litres. The Moio of Salt is only from 18 to 20 Alqueiras.

## MEASURES OF CAPACITY FOR LIQUIDS.

<i>Old Portuguese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Imperial Pint.	Litres.
	1 Quartilho	= .61408	= .34875
4 Quartilhos	= { 1 Canada (or Medida) }	„ Imperial Gallons. .30704	„ 1.395
6 Canadas	„ { 1 Pota, or Can- taro, or Alqui- era of Lisbon) }	„ 1.84228	„ 8.37
2 Potas or Alqueiras }	„ 1 Almuda*	„ 3.68456	„ 16.74

\* In Madeira 1 Alqueira is equal to .387784 British Imperial Bushel, or 14.091 Litres, or 1.018 Alqueira of Lisbon, or two-fifths of an old Winchester Bushel. In the Azores 1 Alqueira is equal to .829547 British Imperial Bushel, or 11.98 Litres.

† In Madeira the Madeira Wine-pipa is equal to 23½ Madeira Almudas, or about 91½ British Imperial Gallons.

The Measures above given were the Lisbon Standards.

The Lisbon Pipa for Oil contained 80 Almudds of Lisbon, and was equal to 110·5368 British Imperial Gallons, or 5·022 Hectolitres.

In Oporto the Almuda = 5·58286 British Imperial Gallons, or 25·865 Litres; and 66 Almudas of Oporto = 100 Almudas of Lisbon.

#### WINE MEASURE.

<i>Old Portuguese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Gallons.	<i>Metric value.</i> Hectolitres.
18 Almudas	= 1 Barril (of Wine)	= 66·82208	= 3·0182
26 Almudas	„ 1 Pipa „	„ 95·798	„ 4·853
2 Pipas	„ 1 Tonelada „	„ 191·596	„ 9·706

The above were the Lisbon Standards.

In Oporto the Wine Pipa contained 21 Almudas of Oporto, and was equal to 117·236 British Imperial Gallons, or 5·32665 Hectolitres; and the Oil Pipa likewise contained 21 Almudas of Oporto. In practice 11 Wine Pipas of Lisbon were usually reckoned equal to 9 Wine Pipas of Oporto.

In Rio Janeiro the Medida or Canada = 2·4426 British Imperial Quarts, or 2·66204 Litres. It is equal to about 2 Medidas of Lisbon. The Pipa of Rio Janeiro is 180 Medidas, and = 109·917 British Imperial Gallons, or 479·167 Litres. The Tonelada = 2 Pipas.

In Bahia the Medida = 5½ Medidas of Lisbon = 1·584 British Imperial Gallon = 7·2 Litres.

The Pipa of Rum = 72 Canadas; the Pipa of Molasses and Syrup = 100 Canadas.

In Pernambuco the Canada = 6·056 Litres, or 1·3579 British Imperial Gallon.

#### WEIGHTS—(COMMERCIAL).

<i>Old Portuguese value.</i>	<i>Systematic name.</i>	<i>English value.</i> Troy Grains. lbs. av. Cwt.	<i>Metric value.</i> Grammes. Kilogrammes.
	1 Oitavo	= 55·835	= 3·5859
8 Oitavos	= 1 Onça	„ 442·687	„ 28·6875
16 Onças	„ 1 Arratel	„ 1·01186	„ 459
82 Arratels	„ 1 Arroba	„ 32·37952	„ 14·638
4 Arroba	„ 1 Quintal	„ 129·51808	„ 58·752
13½ Quintals or 54 Arrobas	} „ 1 Tonelada	„ 15·61155	„ 793·152

There is also the Quintal of 100 Arratels = 101·186 lbs. av., or 45·900 Kilogrammes. Ships' freight is reckoned by the English ton, equal to 70 Arrobas.

### GOLD, SILVER, AND MONEY WEIGHTS.

The unit is the Marco of 8 Onças, with the following divisions :—

<i>Old Portuguese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>Troy Grains.</small>	<small>Grammes.</small>
24 Grãos	= 1 Escrupulo	= 18·480	= 1·1958
8 Escrupulos	„ 1 Oitavo	„ 55·341	„ 3·5859
8 Oitavas	„ 1 Onça	„ 442·7208	„ 28·6875
8 Onças	„ 1 Marco	„ 3541·7664	„ 229·5

Assayers divided the Marco for fine Gold into 24 Quilates, each of 4 Grãos, or into 96 Grãos, each of 8 Oitavos; and for Silver into 12 Dinheros, each of 24 Grãos, that is 288 Grãos.

Wrought Gold was of the fineness of 20½ Quilates; Gold Dust was reckoned to be of the fineness of from 21¼ to 22 Quilates. Wrought Silver was of the fineness of 10½ Dinheros.

### JEWEL WEIGHT.

<i>Old Portuguese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>Troy Grains.</small>	<small>Grammes.</small>
4 Grãos	= 1 Quilate	= 3·17645	= 205782

### APOTHECARIES' WEIGHTS.

<i>Old Portuguese value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		<small>Troy Grains.</small>	<small>Grammes.</small>
24 Grãos	= 1 Escrupelo	= 18·445	= 1·1953
8 Escrupelos	„ 1 Oitavo	„ 55·385	„ 3·5859
8 Oitavas	„ 1 Onça	„ 442·687	„ 28·6875
12 Onças	„ 1 Arratel	„ 5312½	„ 344·25

The Apothecaries' Arratel = ¾ths of the Commercial Arratel, so that 4 Apothecaries' = 3 Commercial Arratels.

### PERU.

The Metric system of Weights and Measures (see France) is being introduced, but the Weights and Measures of the old Spanish system (Castilian Standards) are still in common use with the following variations (see Spain).



## MEASURES OF LENGTH.

The *Vara* of 8 *Pies* = .8475 *Mètre* = 1.0138 Castilian *Varas* = 2.78061 Feet English. The *Braza* of 2 *Varas* or 6 *Pies* = 1.695 *Mètre* = 1.85374 English Yard. The *English Yard* is also frequently used.

## MEASURES OF CAPACITY.

The *Fanega* of Wheat weighs from 185 to 140 Castilian *Libras*, while the Castilian *Fanega* weighed only 100 *Libras*. Rice is sold at so much for the weight of an *Arroba*.

In the Measurement of Liquids the *old British Wine Gallon* is frequently used (see the article "United States of North America," p. 264).

## WEIGHTS.

The *Carga* (*Quintal Maco*) = 6 *Arrobas* = 150 Castilian *Libras*; the *Bulto Corriente* =  $\frac{1}{2}$  *Carga*; the *Tonnelada* = 200 *Libras*.

## CHILI.

The Legal Weights and Measures of Chili are now those of the Metric system (see France), that system having been introduced in lieu of the old Spanish (Castilian) Weights and Measures (see Spain, p. 167), but those latter are still occasionally used.

## OLD MEASURES OF LENGTH.

The Chilian *Vara* of 8 *Pies* = 33.867 English Inches = 1.1014 Castilian *Varas*, or .8475 *Mètre*.

108 Old *Varas* of Chili = about 100 English Yards.

100 *Varas* = about 98 English Yards.

119 *Varas* = 100 *Mètres*.

## OLD MEASURES OF SURFACE.

The *Quadra* was the Square of 150 *Varas*, and was nearly equal to 4 English Acres.

### OLD MEASURES OF CAPACITY FOR DRY GOODS.

The Chilian Fanega of White Wheat and Barley = 155 Libras = 1·656 Castilian Fanegas, 90·75 Litres.

The Chilian Fanega of Indian Corn = 160 Libras.

The Chilian Fanega of Potatoes = 200 Libras.

At San Antonio the Fanega of Wheat = 150 Libras.

At Concepcion the Fanega of Wheat = 175 Libras.

### OLD MEASURES OF CAPACITY FOR LIQUIDS.

The Chilian Wine Arroba of 4 Cuartos = 2 Castilian Wine Arrobas = 9 old British Wine Gallons, or 7·7496 British Imperial Gallons, or 35·21 Litres.

### OLD WEIGHTS.

The Tonelada of 20 Quintals; the Quintal of 100 Libras; the Arroba of 25 Libras; the Libra of 4 Cuaterones, each of 4 Onzas, each of 8 Ochavas = 1·00992 lbs. av. English, or 460·098 Grammes.

## BOLIVIA.

The Weights and Measures are those of the old Spanish (Castilian) system (see Spain, p. 167).

## ARGENTINE REPUBLIC.

The Standard Weights and Measures are those of the Mètric system (see France, p. 119), recently introduced, but not yet come into general use.

The Weights and Measures previously used were, the Castilian of the old Spanish system (see Spain, p. 167), with some slight variations in name and value, as follows:—

### OLD MEASURES OF LENGTH.

The *Pie* of 12 Pulgadas, each of 12 Lineas = 11·3652 English Inches = 1·03713 old Castilian Foot = ·28866 Mètre.

The *Vara* of 3 Pies = ·86598 Metre = 2·8413 English Feet = 1·03713 Castilian Varas.

The *Braza* of 6 Pies = 5·6826 English Feet.

The *English Yard* was also frequently used in the sale of goods.

The *Cuadra* of 150 Varas = 142·065 English Yards, or 129·897 Mètres.

The *Legua* of 40 Cuadras = 3·2287 English Miles = 5·196 Kilomètres.

#### OLD MEASURES OF SURFACE.

The *Cuadra Cuadrada* of 22,500 Square Varas = about 4·17 English Acres, or 168·7478 Ares.

The *Suerta de estancia* of 27,000 Square Varas = 5·004 English Acres, or 202·49687 Ares.

The *Suerta de Chacra*\* of 10,000 Square Varas = 1·8593 English Acre, or 74·9988 Ares.

#### MEASURES OF CAPACITY FOR DRY GOODS.

The *Fanega* of 4 Cuartillas, or 9856 Cubic Pulgadas = 2·50865 old Castilian Fanegas = 137·2 Litres = 3·77464 British Imperial Bushels. The *Last* of 2 Toneladas, or 4 Cahices, or 15 Fanegas = 7·07745 British Imperial Quarters, or 20·58 Hectolitres. The *Cuartelle* = ·94366 British Imperial Bushel, or 34·3 Litres.

#### OLD MEASURES OF CAPACITY FOR LIQUIDS.

The unit of Liquid Measures was the *Frasco*, of the capacity of 170½ Cubic Pulgadas, and equal to 2½ Litres, or 4·18182 British Imperial Pints. Its divisions and multiples were as follows :—

<i>Old Argentine value.</i>	<i>Systematic name.</i>	<i>English value.</i> Imperial Pinta.	<i>Metric value.</i> Litres.
2 Ochavos	= 1 Cuarto	= ·13068	= ·074218
2 Cuartos	„ 1 Medio	„ ·26136	„ ·148437
2 Medios	„ 1 Frasco	„ ·52273	„ ·296875
8 Frascos	„ 1 Caneca	„ 4·18182	„ 2·375
4 Canecas	„ 1 Barrile	„ 2·09091	„ 9·5
6 Barriles	„ 1 Pipa	„ 12·54549	„ 57

\* There were three varieties of the *Suerta de Chacra*, viz. :—(1) That containing 10,000 Square Varas used for measuring cultivated land in the country. (2) That containing 19,600 Square Varas, used for measuring cultivated land near towns. (3) That containing 25,000 Square Varas, used for measuring waste land in the Prairies.

The Old British Wine Gallon equal to '833111 British Imperial Gallon, or 3·785 Litres, was also used, and 2 such Gallons were reckoned equal to 3 Frascos.

The Pipa is also divided into 4 Cargas, each of 4 Cortans, each of 12 Frascos.

#### OLD WEIGHTS—(COMMERCIAL).

<i>Old Argentine value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
	1 Grano =	·76922 =	·0498
36 Granos =	1 Adarme	27·69211	1·7944
16 Adarmes	„ 1 Onza	443·07375	28·7105
16 Onzas	„ 1 Libra	1·01274 <sup>lbs. av.</sup>	459·8673
25 Libras	„ 1 Arroba	25·3185	11·48418
4 Arrobas	„ 1 Quintal	101·274	45·93673
20 Quintals	„ 1 Tonelada	19·691 <sup>Cwt.</sup>	918·7346

#### GOLD, SILVER, AND ASSAYERS' WEIGHTS.

For Gold and Silver the Marco of 8 Onzas = 3544·59 Troy Grains, or 229·684 Grammes.

Assayers divided the Marco for Gold into 24 Quilates, each of 4 Granos, and each Grano of 8 Partes; and for Silver, into 12 Dineros, each of 24 Granos.

#### APOTHECARIES' WEIGHTS.

The Apothecaries' Libra was  $\frac{3}{4}$ ths of the ordinary Libra, and was subdivided as follows:—

<i>Argentine value.</i>	<i>Systematic name.</i>	<i>English value.</i>	<i>Metric value.</i>
		Troy Grains.	Grammes.
	1 Grano =	·76922 =	·04955
12 Granos =	1 Ovalo	9·23070	·59469
2 Ovalos	„ 1 Escrupelo	18·46140	1·18932
3 Escrupelos	„ 1 Drachma	55·38422	3·56797
8 Drachmas	„ 1 Onza	443·07375	28·54378
12 Onzas	„ 1 Libra	5316·885	344·5254

#### URUGUAY.

The Metric system of Weights and Measures (see France) was introduced in 1864. Previously the Weights and Measures were the Castilian Standards of the old Spanish system, (see

Spain, also Argentine Republic) with some slight variations in name and value, as follows :—

#### MEASURES OF LENGTH.

The Vara of 3 Pies = 2·9049 English Feet, or ·860 Mètre  
= 1·0288 old Castilian Vara = ·90307 of the Vara of Buenos Ayres.

The Pies = 11·6196 English Inches, or ·286 Mètre.

100 Varas of Uruguay = 96·88 English Yards.

#### MEASURES OF CAPACITY FOR DRY GOODS.

The Fanega of 4 Cuartillos = 132·4026 Litres = 3·64264 British Imperial Bushels.

#### MEASURES OF CAPACITY FOR LIQUIDS.

The Pipa of 6 Barriles, each of 4 Canceas, each of 8 Frascos, each of 2 Medios, or 4 Cuartos, or 8 Ochavos, is equal to 106·638208 British Imperial Gallons, or 484·48 Litres.

15 Pipas of Montevideo = 16 Pipas of Buenos Ayres.

100 Frascos of Montevideo = 113·3 Frascos of Buenos Ayres.

#### WEIGHTS.

The Weights are the same as the old Weights of the Argentine Republic (see p. 274).

### PARAGUAY.

The Weights and Measures are the same as those used in the Argentine Republic previous to the introduction of the Metric system (see p. 274).

### THE FALKLAND ISLANDS.

The Weights and Measures are the same as those of Great Britain (see p. 106).

**NEW SOUTH WALES, VICTORIA, SOUTH AUSTRALIA, WEST AUSTRALIA, TASMANIA, or VAN DIEMEN'S LAND, AND NEW ZEALAND.**

The Legal Weights and Measures are the same as those of Great Britain (see p. 106); but the old British Measures of Capacity are also much used (see the article "United States of North America," (see p. 264).

In Land Measurement the term "Section" is used to denote 80 British Acres.

**NEW CALEDONIA, THE ROTUMAH ISLANDS, WALLIS ISLANDS, GAMBIE'S ISLANDS, MARQUESAS, or MENDANA ISLANDS.**

The Weights and Measures are the same as those of France (see p. 119).

**THE SANDWICH ISLANDS.**

The Weights and Measures are the same as those of the "United States of North America" (see p. 264); but the Hundredweight contains 100 lbs. av., and the Ton 2000 lbs. av.

**SPANISH AUSTRALIAN POSSESSIONS,**

VIZ. :

**THE MARIAN ISLANDS AND TINIAN.**

The Weights and Measures are the same as those of Spain (see p. 167).

**OTAHEITE, or TOHITI.**

The Weights and Measures are chiefly those of Great Britain (see p. 106); but the Metric system is about being introduced (see France, p. 119).

## APPENDIX I.

### INDIAN COINAGE AND ACCOUNTS.

By W. H. BAYLEY, Esq., of the Madras Civil Service.

Throughout India, accounts are kept in R. A. P., the three columns, denoting *Rupees, Annas, Pies*.

12 Pies = 1 Anna

16 Annas = 1 Rupee

For all ordinary purposes, the Rupee may be considered equal to two shillings (its intrinsic value will be given below), so that 100 Rs. = £10; 155 Rs. = £15. 10s., &c. A *lac* of Rupees is 100,000, or £10,000; and a *crore* of Rupees = 100 lacs, or £1 million.

The Coinage of all the Presidencies was assimilated by Act XVII of 1835. Silver is the only legal tender, though lately a gold standard on a limited scale has been much pressed. Rupees,  $\frac{1}{2}$  Rupees,  $\frac{1}{4}$  Rupees, and  $\frac{1}{8}$  Rupees, or "Double Annas," are silver. Silver Single Annas were coined for some time, but not of late years. Act XVII of 1835 sanctioned the coinage of "Double Rupees," but they have never been struck. The Copper coins are  $\frac{1}{4}$  Anna (known in Bengal as "Pysa") = 3 Pies; and the Single Pie or  $\frac{1}{3}$  of an Anna. In Bombay accounts are sometimes kept in Rupees, Quarters, and Raes; 25 Raes = 1 Anna.

In Madras, accounts were formerly kept (and are now in some places) in P. F. C., or Pagodas, Fanams, Cash.

80 Cash = 1 Fanam

45 Fanams = 1 Star Pagoda

But in the old Government accounts the Pagoda was divided into 32 Fanams. The Star Pagoda was always considered as  $8\frac{1}{2}$  Rs.; or  $\frac{1}{8}$  Pagoda (for in some accounts it is divided into 16 lbs.) =  $8\frac{1}{2}$  Annas. There were all kinds of Pagodas, but the British or Star Pagoda was a gold coin of 52.56 grains weight, and  $19\frac{1}{2}$  carats fine; containing 42.7 grains of pure gold, which at the English standard (of £3. 17s.  $10\frac{1}{2}$ d. per Troy ounce standard) = 7.49 Shillings.

The "Sicca Rupee" of Bengal, which was abolished in 1835, weighed 192 grains, whereof  $\frac{1}{4}$  or 176 grains were pure silver; and in all accounts 15 Sicca Rupees are considered 16 of the Indian Rupees\* of the present day, or 100 Sicca Rupees = 106*R.* 10*a.* 8*p.*; or 100 Siccas = 106 $\frac{1}{2}$  Indian Rs.

The Indian Rupee weighs 180 grains, whereof 165 parts or  $\frac{1}{4}$  (a touch of .9167) are pure silver; so that of silver is valued at 6*l.* per Troy ounce of English standard (which contains 444 grains of pure silver) the Rupee, as bullion = 22*s.* 4*d.*; though, as before said, it is generally spoken of as = 2*s.*; the "Anna" as 1*d.*, and the "Pie" at  $\frac{1}{4}$ *d.*

Though Gold is not as yet a *legal tender*, the Act XVII of 1835 authorized the coinage of the "Gold Mohur," or 15 Rupee piece; as also gold pieces of 10 and 5 Rupees. The Gold Mohur was exactly the same weight and fineness as the Rupee, but the ratio of 15 to 1 between gold and silver was found to be too low a valuation of gold (it is not so now, and the Government soon left off coining gold at all. In Bengal the term "Gold Mohur" is often used as meaning 16 Rupees; this is because previous to 1835 that coin weighed 204.710 grains, of which  $\frac{1}{4}$  or 187.651 grains were pure gold, and it was a legal tender for 16 Sicca Rupees.

The Indian Silver coinage having a fineness of  $\frac{1}{4}$ , or  $\frac{118}{100}$ , would by English assay be called 2*W.*, *i.e.* 2 dwts. *worse*, or below the English standard of  $\frac{118}{100}$ ; the one having a "touch" of .9167, the other .9250. The Indian Gold coinage is of the same fineness exactly as the English Gold coin, *i.e.* 22 carats fine =  $\frac{118}{100}$ , or  $\frac{1}{4}$ , or .9167.

#### INDIAN MEASURES—(LINEAR AND SUPERFICIAL).

The Native linear measures are founded on indefinite ideas of the breadth of a finger, or length of the fore-arm. What is generally translated *cubit* averages 19 $\frac{1}{2}$  inches; but in some places it is 18, and in others 20 inches. The "Guz" (except where it is synonymous with the English *yard*) is from 39 to 32 inches. The "Illahi Guz" of the N. W. Provinces is 38 inches.

#### BENGAL.

14 Tussoos	=	1 Hât'h or Cubit	of 19 $\frac{1}{2}$ inches.
2 Hât'hs	=	1 Guz	= 39 $\frac{1}{2}$ inches.
2 Guz	=	1 Danda or Rood	= 5.72 feet.
20,000 Dundas	=	1 Coss	= 2.46 miles.

\* In 1835 it was directed that the Rupee then struck should be called the "Company's Rupee," and this was stamped on it. Since 1862, the stamp has been Victoria on one side, and "India" on the other.



The *Hât'h* is sometimes subdivided into 24 *Ungulis* or finger breadths of  $\frac{1}{4}$  inch each.

The *Hât'h* is, however, now generally an *English* cubit of 18 inches, and the *Guz* an English yard of 36 inches. The *Cass* is reckoned 2 miles.

For *Land Measure* in the North West Provinces, the following is the measure in all Government surveys:—

1 <i>Guz</i>	=	33 inches.
3 <i>Guz</i>	=	1 <i>Bans</i> or Rod of $8\frac{1}{4}$ feet.
1 <i>Sq. Rod</i>	=	68·0625 Square feet.
400 <i>Sq. Rods</i>	=	8025 <i>Sq. yards</i> , or 1 <i>Beegah</i> = ·625 acre.

But in Bengal Proper—

4 <i>Sq. Hât'hs</i> of 18 inches	=	1 <i>Cowrie</i> = 1 <i>Sq. yard</i> .
4 <i>Cowries</i>	=	1 <i>Gunda</i> = 4 <i>Sq. yards</i> .
20 <i>Gundas</i>	=	1 <i>Cottah</i> = 80 <i>Sq. yards</i> .
20 <i>Cottahs</i>	=	1 <i>Beegah</i> of 1600 <i>Sq. yards</i> = ·8025 acres.

The *Cottah* is also subdivided into *Chittâks* or 16ths, of 5 Square yards each.

## MADRAS.

The Native *Kole* or Artificers' rod, as also the *Guz* introduced by the Mahomedans, is about 33 inches. The *Moolum* (translated "cubit") averages  $19\frac{1}{4}$  inches, and is subdivided into 24 *Ungulums* or finger-breadths. The *Baum* (translated "fathom") is about  $6\frac{1}{4}$  feet. For long distances the term "*nâlli-vulli*" is used, from *nâlli* a space of time of 24 minutes, and *vulli* a road; i. e. the distance walked in 24 minutes, or rather under  $1\frac{1}{4}$  English miles. 7 *nâlli vulli* = 1 *Kâdam*, or about 10 miles.

The English foot and yard are now used by almost all native workmen.

For Land Measure, the native method is, to estimate the space which a certain quantity of seed will sow; and this makes the native terms quite uncertain. Sometimes a term is given to so many "rods," or "ropes" square; but these rods and ropes differ in every district.

In Madras itself, and some other districts, the *Cawnie* is 57600 *Sqr. feet*, or 1·322 acres, subdivided into 24 "Grounds," or else into 100 "Coolies." During the last few years, in consequence of the Revenue Field Survey, the English acre has come to be generally known. In this Survey the Gunter's chain is used, and in the accounts, the acre is subdivided into 1000ths, as in the English Ordnance Survey.

## BOMBAY.

2 Unglis, or finger-breadths = 1 Tussoo =  $1\frac{1}{4}$  inch.

24 Tussoos = 1 Guz 27 inches.

The *Hat'h* of 18 inches, and the  $\frac{1}{4}$  *Hat'h*, or *Vent'h* are also used.

In Superficial Measure—

20 Kutties = 1 Pund.

20 Pund's = 1 Beega of 3927 Sq. yards = .8114 acre.

But the Kutty varies in every district.

In the Revenue Field Survey, the acre is used, subdivided into 40 Goontas, and each Goonta into Annas, or 16ths.

## INDIAN WEIGHTS.

By Act VII of 1838, the *Tola* or Rupee weight of 180 grains was established as the unit of weight in all Government transactions in Bengal; but the Madras and Bombay Presidencies have not adopted the multiples thereof; and as far as the native population is concerned, almost every district has its own weights, founded on no reliable data at all. In Bengal, the Government and Mercantile Houses have adopted the following:—

1 Tola, or Rupee weight = 180 grains.

5 Tolas = 1 Chittāk.

16 Chittāks, or 80 Tolas = 1 Seer = 2.05714 lbs. avoird., or  $8\frac{1}{2}$  lbs. Troy.

5 Seers = 1 Passereee.

40 Seers, or 3200 Tolas = 1 Maund =  $82\frac{1}{2}$  lbs. avoird., or 100 lbs. Troy.

Hence 850 Tolas = 9 lbs. avoird., 35 Seers = 72 lbs. avoird., 7 Maunds = 576 lbs. avoird., and 49 Maunds, 36 cwt., or 1.8 tons.

The old "Factory Maunds" adopted by the Bengal Government in A.D. 1787, was exactly  $\frac{1}{4}$  cwt., or  $74\frac{1}{4}$  lbs. avoird. The old "Bazaar Maund" (subdivided into 40 Seers) weighed  $72\frac{1}{4}$  lbs. avoird.

In the Interior, the Seer varies from 60 to 84 Tolas weight.

The Jewellers subdivide the Tola into 12 Māshas, of 15 grains each; and the Māsha into 8 Buttees.

In Madras, the Government in the "Gazette" of 20th Oct. 1846, adopted the following, for all Government transactions.

- 1 Pollum = 3 Tolas, or 540 grains.  
 8 Pollums = 1 (Cutchu) Seer = 24 Tolas.  
 5 Seers = 1 Viss = 120 Tolas = 3.0857 lbs. av.  
 40 Seers = 1 Maund = 24.6857 lbs. av.  
 20 Maunds = 1 Candy = 493.714 lbs. av.

But by Commercial usage, the Viss is always considered  $3\frac{1}{2}$  lbs. avoird.; the Maund 25 lbs.; and the Candy 500 lbs.

In the Interior, the Cutchu Seer of 24 Tolas (or Rupees) weight is common, as also the Pucka Seer of 80 Rupees weight; though in some places it is 72 and in others 84 Rupees weight. On the Western Coast the Maund is 85 lbs. The Bengal Maund of 82 $\frac{1}{2}$  lbs. (see *ante*) is known as the "Indian Maund," and is in general use in the Custom Houses and Shipping trade. The "Garce" is used in the Grain trade. It is supposed to be 925 $\frac{1}{2}$  lbs.; but though it may have been so 70 years ago, it has for many years been a mere Custom House term applied to 92 Indian Maunds of Paddy (unhusked rice), or to 123 Indian Maunds of Rice. Grain, however, is sold wholesale at the Ports at so much a *bag* of 2 Indian Maunds. Sugar and Oil Seeds are generally shipped in *bags* of 2 Indian Maunds each, reckoned 13 bags the ton. Cotton in *bales* of 300 lbs. Saltpetre in *bags* of 1 cwt. Indigo in *chests* of 10 or 11 cubic feet.

The Jewellers' weights are the Munjádi of about 5 grains; and the Pagoda weight of 54 grains, or  $\frac{1}{16}$  Pollum.

### BOMBAY WEIGHTS.

- 72 Tanks, or 80 Pice = 1 Seer of 2 $\frac{1}{2}$  Tolas, or .7 lbs. av.  
 40 Seers = 1 Maund of 28 lbs. avoird.  
 20 Maunds = 1 Candy of 530 lbs. avoird.

These have been introduced to make the Maund =  $\frac{1}{2}$  cwt., but in the Interior they vary greatly. The Surat Maund is 32 lbs. avoird. The Candy for Cotton is 28 Maunds, or 7 cwt. The Pucka Seer of 72.6 Tolas = 1.867 lbs. avoird., and is used in some places.

### INDIAN MEASURES OF CAPACITY.

There are not in the Native system any Measures of Capacity, properly so called, yet still, among the mass of the people, the so-called "Measures" are of more importance than the Weights, inasmuch as the population live chiefly on rice and other grain. The Liquid Measures for Milk, Oil, and Ghee, (clarified butter,) follow no kind of standard of measurement. The Grain Measures are supposed to contain, when slightly heaped, (for *struck measure* is an abomination to native

eyes,) a certain *weight* of grain; but as the Weights differ in every locality, so do the Measures. Even Measures bearing the same name, by no means indicate the same quantity in every district. Government have never yet in Bengal defined any Measures of Capacity.

### BENGAL.—(North-West Provinces.)

4 Chittáks	=	1 Koonki.
4 Koonkis	=	1 Raik.
4 Raiks	=	1 Palli.
20 Pallis	=	1 Soali.
16 Soalis	=	1 Khahoon.

Eight slightly heaped Pallis were supposed to contain a quantity of Rice, equal in weight to 1 old "Bazaar Maund" of 72½ lbs. Avoir, or 1 Palli 9·041 lbs. Avoir. It had a capacity of about 2800 Cubic Inches, when *struck*.

The "Seer" of Grain is supposed to be 16 of the above Chittáks, or a *struck* capacity of about 57 Cubic Inches; but in practice, the Seer is a vessel containing, when slightly heaped, 80 Rupees' weight, (or a Seer *weight*) of Rice. Its *struck* capacity is about 68 Cubic Inches. For Liquid Measure, the smallest vessel is a Chitták, supposed to hold 5 Rupees' weight of Oil, and 16 Chittáks = 1 Seer:

### MADRAS.

In the Gazette of October 20th, 1846, the Government defined the "Puddee," or Measure, to be used in all Government transactions, at 100 Cubic Inches; the Olluck, or ½ Measure, and the Mercál of 8 Measures; but this has never been attended to, either in Government or any other transactions. In the Shipping Trade grain is sold *in bags* of 2 Bengal Maunds, 164½ lbs. Avoir. In the Bazaar of the town of Madras, the "Puddee" or Measure, has a capacity of 104 Cubic Inches, and contains, when heaped in the usual way, about 128 Rupees' weight, or 3·8 lbs. of Rice. The "Mercál," has a capacity of 832 Cubic Inches, but when heaped in the usual way, is equal to 8 heaped Measures.

This "Madras Measure" is in use in some of the large Towns and Cantoonsments, but every locality has its own denomination of Measure, and almost all different. Perhaps the most common is the Seer-measure, supposed to contain, when heaped, a Pucka Seer, or 80 Rupees' weight, or 2 lbs. of Rice. For Lime, the "Parrah" of from 3800 to 4000 Cubic Inches is used. Salt is measured in Mercáls, 424 of which are considered a "Garce," which is supposed to weigh 120 Bengal or Indian Maunds, or 4.41 Tons. Oil is sold per "Viss" of 16 Chitties; the Viss is about 2 ordinary wine bottles.

### BOMBAY.

2 Tipprees	=	1 Seer.
4 Seers	=	1 Pylee.
16 Pylees	=	1 Parah.
8 Parahs	=	1 Candy.

The Seer is a vessel, which, when heaped, contains about 7½ lbs. of Rice, which makes the Candy about 780 lbs. av. Paddy, or Rice in the husk, is sold at 25 Parahs = 1 Moods of about 2450 lbs.

Salt is sold by the Parah of 10½ Adholees. The Parah contains about 1608 Cubic Inches. 100 Parahs = 1 Anna, and 16 Annas = 1 Rass, estimated at 1120 Bengal Maunds' weight, or 41½ Tons.

For *Liquids*. 1 Seer = 60 Rs. weight, or 1.54 lbs.  
50 Seers = 1 Maund, of 77 lbs.

## APPENDIX II.

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*Memorandum forwarded by H. B. M., Consul-General for Borneo, with regard to Dr. Browne's tabulated series of questions on the Currency, Weights and Measures of Borneo, &c.*

### A.—MONEY.

On the N.W. coast of Borneo, goods and produce are exchanged for each other, the reckoning being made in so many Piculs of brass guns, a Picul being worth about \$35.

This is not altogether an imaginary mode of keeping accounts, for the guns are actually cast in quantities at Brunei, and weigh from 2 to 8 guns to the Picul. At Brunei fines are levied in Piculs of guns. Dollars and Cents are also a medium of exchange.

In the south of Borneo, under Dutch rule, the Real and Guilder are used in reckonings, the Real being an imaginary coin worth 2 Guilders.

In Lootoo and the territories in Borneo belonging to that country the currency consists of Doubloons, Dollars, and Pitis, 5,000 of which are equal in value to a dollar. These small zinc coins are made in China and Manilla for the Lootoo market, and are similar to the copper cash used in China, but are much smaller and thinner. In the extreme north of Borneo money is almost unknown, and accounts are kept in pieces of cloth, each piece equal to \$1.50. In the mountains of the same district reckonings are made in bundles of iron for large accounts, each bundle, so far as I could learn, being in weight about 8lbs. For small accounts they reckon in charges of gunpowder.

The mountaineers (Legai) in the N.E. of Borneo reckon in cakes of salt for small accounts and pieces of cloth, each representing \$3, for large accounts.

In the western part of New Guinea accounts are calculated in pieces of black cloth, each valued at 10 Guilders.

### WEIGHTS USED AT BRUNEI.

16 Taels	=	1 Catty.	
100 Catties	=	1 Picul	= 138½lbs.
40 Piculs	=	1 Koyan.	

## MEASURES OF QUANTITY.

2 Pahus or Bambus	=	1 Chupa.
4 Chupahs	=	1 Gantang
10 Gantangs	=	1 Para.
20 "	=	1 Picul.
40 Piculs	=	1 Koyan.

## MEASURES OF LENGTH.

2 Jankals	=	1 Hasta.
2 Hastas (Cubits)	=	1 Ella or Yard.
2 Ellas	=	1 Dapa or Fathom.

## APPENDIX III.

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*Monetary Convention, concluded at Paris, December 23rd, 1865, between France, Italy, Belgium and Switzerland.*

A Monetary Convention was concluded at Paris, December 23rd, 1865, between France, Italy, Belgium and Switzerland. It is an agreement between those countries to assimilate their coinage to the monetary system of France, except as regards copper money. The following are the gold and silver coins specified by the Convention:—

### GOLD COINS.

Pieces of 100, 50, 20, 10 and 5 Francs.

### SILVER COINS.

Pieces of 5, 2 and 1 Francs, and of 50 and 20 Centimes.

The coinage of each of the four countries will be a legal tender in all the others. The old coinage is to be withdrawn from circulation before January, 1869, with the exception of Swiss 2 and 1 Franc pieces, which will be withdrawn by January 1st, 1878. The following is a translation of the Convention:—

“ His Majesty the King of the Belgians, His Majesty the Emperor of the French, His Majesty the King of Italy, and the Swiss Confederation, being equally desirous of establishing a more complete harmony between their monetary legislation, to remedy the inconveniences which press upon the communications and transactions between the inhabitants of their respective States in consequence of the diverse values of their coined moneys, and to contribute, by the formation of a Monetary Union, to the progress of uniformity in weights, measures and currency, have resolved to conclude a Convention to that effect, and have named as their Commissioners Plenipotentiary as follows —



"His Majesty the King of the Belgians, M. Frédéric Fortamps, Director of the Bank of Belgium, &c., and M. Krelinger ;

"His Majesty the Emperor of the French—M. Marie Louis Félix Esquiron de Parien, Vice-President of the Council of State, &c., and M. K. J. Pelouze, President of the Coinage Commission ;

"His Majesty the King of Italy—M. Isaac Artom, Councillor of Legation at Paris, and M. V. Pradolongo ;

"The Swiss Confederation—M. Kern, Envoy Extraordinary to His Majesty the Emperor of the French, and M. Feer-Herzog ;

"Who, after mutually exhibiting their respective full powers in good and due form, have agreed upon the following Articles :—

"Article 1. Belgium, France, Italy, and Switzerland are constituted a Union as respects the weights, values, form, and currency of their respective coinages in gold and silver. No change is made at present in the legislation relating to the copper money of each of the States.

"Article 2. The high contracting parties engage not to coin nor allow to be coined, bearing their impressions and designs, any gold moneys in any other forms than those of gold pieces of 100f., 50f., 20f., 10f., 5f., fixed as to weight, values, allowance for loss, and diameter as follows :—

Nature of Pieces.	Full Weight.	Allowance in Weight at home and abroad.	Standard.	Allowance from Standard.	Diameter.
France.	Grammes.	Thousand Parts.	Thousand Parts.	Thousand Parts.	Milli-metres.
100 ..	32258·06	1	900	2	35
50 ..	16129·3				
20 ..	6451·61				
10 ..	3225·80	2			
5 ..	1612·90				
					28
					21
					19
					17

"They shall receive without distinction into their public treasuries gold pieces coined according to the foregoing conditions in one or other of the four States, with the reservation, nevertheless, of excluding all coins whose weight shall have been reduced by wear to the extent of  $\frac{1}{4}$  per cent. below the allowances mentioned above, or where the stamped impressions shall have become effaced.

"Article 3. The contracting Governments bind themselves not to make, nor allow to be made, silver pieces of 5f., except according to the conditions of weight, standard, allowance, and diameter fixed as follows :—

Full Weight.	Allowance.	Full Standard.	Allowance.	Diameter.
25 grammes	3,000ths	900,000ths	2,000ths	37 millimetres.

They shall mutually receive the said coined pieces into their public treasuries, with the right of excluding those which shall have lost weight by wear to a greater extent than 1 per cent. below the allowance above-mentioned, or where the stamped impression shall have become effaced.

“ Article 4. The high contracting parties henceforth shall not manufacture silver pieces of 2f., 1f., 50c., and 20c., except according to the conditions of weight, standard, allowance, and diameter as follows :—

Description.	Full Weight.	Allowance in Weight.	Full Standard.	Allowance.	Diameter.	
Francs.	Grammes.	Thousand Parts.	Thousand Parts.	Thousand Parts.	Milli-metres.	
2	10	5	885	3	27	
1	5.00					
0.50	2.50					7
0.20	1.00					10
					16	

“ These pieces shall be recast by the Governments that issued them when they shall have become reduced by wear to the extent of 5 per cent. below the above-mentioned allowance, or when their stamped impressions shall have become effaced.

“ Article 5. The silver pieces of 2f., of 1f., of 50c., and of 20c. manufactured otherwise than according to the various conditions specified in the foregoing Article shall be withdrawn from circulation before January 1, 1869. This period is extended until January 1, 1878, in respect of pieces of 2f. and 1f. issued in Switzerland by virtue of the law of January 31, 1860.

“ Article 6. Silver pieces manufactured according to the conditions of Article 4 shall have legal currency among private individuals in the State which has manufactured them to the extent of 50f. in a single payment. The State which has issued them shall receive them from its own countrymen without any limit of quantity.

“ Article 7. The public treasuries of each of the four countries shall accept silver moneys coined by one or several of the other contracting States, in conformity with Article 4, to the extent of 100f. in each single payment to such mentioned treasuries.

“ The Governments of Belgium, France, and Italy shall receive upon the same terms until January 1, 1878, the Swiss pieces of 2f. and 1f. issued by virtue of the law of the 31st of January, 1860, and which are assimilated in all respects during the same period to pieces manufactured in accordance with the

conditions of Article 4. The reservation in respect of wear mentioned in Article 4 applies in all cases.

"Article 8. Each of the contracting Governments undertake to receive back from individuals or from the public treasuries of the other States the old coinage which it has issued, and to exchange it for an equal value in current coin (gold pieces or five-franc pieces in silver), upon condition that the sum presented for exchange shall not be less than 100f. This obligation shall be prolonged for a period of two years from the date of the expiration of the present Treaty.

"Article 9. The high contracting parties shall not issue silver pieces of 2f., of 1f., of 50c., and of 20c. struck according to the conditions mentioned in Article 4 beyond the ratio of 6f. in value for each inhabitant. This amount, upon the basis of the last census in each State, and reckoning the presumed increase of population until the expiration of the present Treaty, is fixed thus:—

	Francs.
For Belgium . . . . .	92,000,000
For France . . . . .	289,000,000
For Italy . . . . .	141,000,000
For Switzerland . . . . .	17,000,000

"Taken on account of the sums above mentioned which the Governments have the right to stamp of the values already issued:—

"By France, in virtue of the law of the 25th of May, 1864, in pieces of 50c. and 20c. for about 16 millions.

"By Italy, in virtue of the law of the 24th of August, 1862, in pieces of 2f. of 1f., of 50c., and of 20c., for about 100 millions.

"By Switzerland, in virtue of the law of the 31st of January, 1860, in pieces of 2f. and 1f. for 105,000f.

"Article 10. The date of coinage shall hereafter be stamped upon pieces of gold and silver struck in any of the four States.

"Article 11. The contracting Governments shall communicate to each other annually the total amount of their issues of gold and silver coins, their position as to the withdrawal and remelting of the old coinage; all the arrangements and all the administrative documents relating to coinages.

"They shall also give to each other information of all facts which concern the reciprocal circulation of their gold and silver moneys.

Article 12. The right of acceding to this Convention is reserved to any other State which shall accept its obligations, and which shall adopt the monetary system of the union in whatever relates to gold and silver specie.

Article 13. The execution of the mutual engagements contained in the present Convention is subject, as far as may be necessary, to the fulfilment of formalities and regulations prescribed by the Constitutional laws of those of the high contracting parties which have determined to obtain their application, and which they bind themselves to do with the least possible delay.

Article 14. The present Convention shall remain in force until January 1st, 1880. If one year prior to that date notice to determine it shall not have been given (*dénoncée*), it shall remain obligatory in full force for a further period of 15 years, and, in like manner, for further periods of 15 years in the absence of denunciation.

“Article 15. The present Convention shall be ratified, and the ratification thereof shall be exchanged at Paris within the space of six months, or sooner if possible.

“In faith of which the respective Commissioners Plenipotentiaries have signed the present Convention, and have affixed to it the seals of their arms.

“Made in four parts at Paris, December 23rd, 1865.”

## APPENDIX IV.

### AVERAGE COURSE OF EXCHANGE FOR THE YEAR 1866.

LONDON receives from or gives to—

Amsterdam ..	Short ..	11 Gulden	17 cents	.. For	£1 Sterling.
Amsterdam ..	8 months ..	11 Gulden	71½ cents	..	" " "
Rotterdam ..	" ..	11 Gulden	81½ cents	..	" " "
Antwerp ..	" ..	25 Francs	52½ centimes	"	" " "
Brussels ..	" ..	25 Francs	52½ centimes	"	" " "
Hamburg ..	" ..	18 Marks	9½ schillinge	"	" " "
Paris ..	Short ..	25 Francs	19 centimes	"	" " "
Paris ..	8 months ..	25 Francs	45½ centimes	"	" " "
Marseilles ..	" ..	25 Francs	47½ centimes	"	" " "
Frankfort-on-Main	" ..	190 Florins		"	£10 "
Vienna ..	" ..	12 Florins	86½ cents	"	£1 "
Trieste ..	" ..	12 Florins	89 cents	"	" " "
St. Petersburg ..	" ..	28½d. sterling			For 1 Ruble.
Copenhagen ..	" ..	9 Rigsdalers	18½ skilling	For	£1 Sterling.
Madrid ..	" ..	46d. sterling		"	1 Dollar.
Cadis ..	" ..	46½d. sterling		"	" " "
Leghorn ..	" ..	26 Lire	97½ cents	"	£1 Sterling.
Milan ..	" ..	26 Lire	96 cents	"	" " "
Milan ..	8 months ..	26 Lire	97 cents	"	" " "
Genoa ..	" ..	26 Lire	96 cents	"	" " "
Genoa ..	Short ..	26 Lire	98 cents	"	" " "
Naples ..	" ..	26 Lire	98 cents	"	" " "
Palermo ..	" ..	26 Lire	98 cents	"	" " "
Messina ..	" ..	26 Lire	98 cents	"	" " "
Oporto ..	90 days ..	51½d. sterling		"	1 Milreis.
Lisbon ..	" ..	51½d. "		"	" " "
New York ..	60 days ..	146½ <sup>a</sup> "		Per cent.	Sterling.
Bombay ..	" ..	2s. 1½d. "		"	1 Rupee.
Calcutta ..	" ..	2s. 0½d. "		"	" " "
Canton ..	" ..	4s. 7½d. "		"	1 Dollar
Shanghai ..	" ..	6s. 8½d. "		"	" " "
Hong Kong ..	" ..	4s. 6½d. "		"	" " "
Buenos Ayres ..	" ..	50½d. "		"	" " "
Rio Janeiro ..	" ..	24½d. "		"	1 Milreis.
Bahia ..	" ..	25½d. "		"	" " "
Montevideo ..	" ..	52½d. "		"	1 Dollar.
Pernambuco ..	" ..	26½d. "		"	1 Milreis.
Santiago (Chili)	" ..	44½d. "		"	1 Dollar.
Lima ..	90 days	87d. "		"	" " "

<sup>a</sup> This is the exchange for "greenbacks," a paper currency established during the civil war (1861-5). A return to the gold standard is soon anticipated.



## APPENDIX V.

### GREECE.

The old system of currency, that is the system in use from the year 1833 to the year 1872, was as follows:—

1 Lepton =  $\frac{1}{100}$ d. English.  
 100 Lepta = 1 Drachmai =  $8\frac{1}{2}$ d. "

In this system the Drachma divided into 100 Lepta, was the basis and fundamental unit of account.

	Weight in Grammes.	Fineness.	Alloy.	English value.
<b>GOLD COINS:—</b>				£ s. d.
40 Drachmai	11-558	$\frac{9}{10}$ ths gold	$\frac{1}{10}$ th copper	1 8 4
20 "	5-776	" "	" "	0 14 2
<b>SILVER COINS:—</b>				
5 Drachmai	22-385	$\frac{9}{10}$ ths silver	$\frac{1}{10}$ th copper	0 8 6 $\frac{1}{2}$
1 Drachma	4-477	" "	" "	0 0 8 $\frac{1}{2}$
$\frac{1}{2}$ "	2-238	" "	" "	0 0 4 $\frac{1}{2}$
$\frac{1}{4}$ "	1-119	" "	" "	0 0 2 $\frac{1}{2}$
<b>COPPER COINS:—</b>				
10 Lepta	12-99	Pure copper	No Alloy	0 0 0 $\frac{1}{10}$
5 "	6-495	" "	"	0 0 0 $\frac{1}{5}$
2 "	2-598	" "	"	0 0 0 $\frac{1}{10}$
1 Lepton	1-299	" "	"	0 0 0 $\frac{1}{20}$

The silver Drachma contained 4-029 grammes of pure silver, and 448 grammes of alloy (copper). The 5 drachmai piece contained 20-147 grammes of pure silver and 2-238 grammes of alloy.

The half drachma piece contained 2-015 grammes of pure silver and 223 grammes of alloy.

The Quarter-Drachma piece contained 1-007 grammes of pure silver, and 112 grammes of alloy.

The 20 Drachmai piece (gold) contained 5-199 grammes of pure gold, and 577 grammes of alloy (copper).

The 40 Drachmai piece contained 10-398 grammes of pure gold, and 1155 grammes of alloy.

Not more than  $\frac{1}{10}$  (or 2 per cent.) of the amount of any debt or account could be paid in copper coins.

The Drachma, estimating its value in gold, was worth  $8\frac{1}{2}$ d. sterling; its value, estimated in silver, was  $8\frac{1}{2}$ d. sterling.

Gold and silver coins were very scarce, and copper coins were alone abundant. Under the law of February, 1833, the undermentioned rates were assigned to foreign coins:—

NAME OF THE COIN.	Number of parts of pure metal contained in 1000.	Weight in Grammes.			Greek Value.	
		Pure Metal.	Alloy.	Total.	Drachma.	Lepta.
<b>SILVER COINS.</b>						
French Franc .....	900	4.500	500	5.000	1	11-88
French Five Franc Piece .....	900	22.500	2.500	25.000	5	58-40
English Crown (Shilling piece of 1816)....	925	26.180	2.120	28.260	6	48-50
"  Shilling (of 1816) .....	925	5.226	494	5.615	1	29-70
"  Sixpence (of 1816) .....	925	2.613	212	2.807	..	64-85
Russian Silver Ruble (of 1796) .....	748	17.799	6.156	23.955	4	41-74
"  "  "  (of 1799) .....	868	18.165	2.762	20.927	4	50-92
"  "  "  (of 1802) .....	875	18.811	3.616	22.427	4	54-44
"  Half Silver Ruble (of 1778) .....	748	8.919	8.085	17.004	2	21-85
"  "  "  (of 1800) .....	868	9.068	1.881	10,464	2	25-42
"  20-Copeck Piece (of 1767) .....	750	4.023	1.841	5.864	..	99-84
Spanish Piastre (Colonato) .....	896	24.176	2.806	26.982	6	..
Half Spanish Piastre " (of 1780).....	896	12.088	1.408	13.491	3	..
"  "  "  (of 1792) .....	896	11.998	1.892	13.895	2	97-64
Spanish Piastre of 1798-1798 .....	896	24.176	2.806	26.982	6	..
Half Spanish Piastre (of 1778).....	896	12.088	1.408	13.491	3	..
"  "  "  (of 1792) .....	896	11.998	1.892	13.895	2	97-64
German Convnt. Thaler (Austrian, Bavarian)	880	28.277	4.768	28.045	5	77-69
Austrian Theresa Thaler .....	888	28.861	4.684	28,045	5	79-78
German Thaler [20 Gulden Standard } (Zwanziger) .....	580	8.851	2.788	6,869	..	95-67
Crown of Bavaria and Brabant .....	868	25.684	3.896	29,582	6	86-19
Venetian Thaler or Ducat of 10 Lire (of 1797)	824	28.691	4.991	29,682	5	87-97
"  Lire (of 1800) .....	286	1.128	8,652	4.780	..	27-99
"  "  "  (of 1802) .....	246	2,012	6,168	4,180	..	49-98
Half-Venetian Lire (of 1802) .....	289	9,778	8,112	4,090	..	24-27
Tuscan Thaler (Franciscone) .....	918	25,023	2,884	27,407	6	21-02
Roman Thaler of 10 Paoli .....	906	24,063	2,496	26,558	5	97-18
Bolognese Thaler of 10 Paoli .....	918	24,161	2,801	26,452	5	99-89
Neapolitan Thaler of 120 Grani, of 1805 ..	881	28,068	4,707	27,770	5	74-88
Turkish Giumh, or Dollar, or Real Medjidie ..	..	..	..	..	5	20
<b>GOLD COINS.</b>						
French 20 Franc Piece (old) .....	900	5,806	6,456	6,4516	22	88-50
"  Napoleon (20 Franc Piece, new)....	902	6,899	750	7,649	26	53-97
English Sovereign, or £ sterling of 20 shillings	916	7,810	871	7,981	26	12-06
"  Half-Sovereign of 10 shillings ..	916	3,655	885	3,990	14	8-08
Spanish Quadruple (1772-1786) .....	898	24,095	2,887	26,982	92	69-09
"  Half-Quadruple (1772-1786) .....	898	12,047	1,444	13,491	46	34-64
"  Pistole or ½-quadruple (1772-1786)....	998	6,028	722	6,745	28	17-27
"  Half-Pistole or ¼-quadruple (1772-1786)	891	2,961	865	3,846	11	46-76
"  Small Gold Piastre or 1 } quadruple (1772-1786) ¼ } .....	885	1,551	202	1,753	5	96-85
Austrian Souverain d'or .....	911	10,108	998	11,101	36	88-43
Austrian Half-Souverain d'or .....	915	5,054	470	5,524	19	44-28
Austrian and Bavarian Ducat .....	984	8,397	355	8,459	18	6-89
Dutch Ducat .....	979	8,880	772	8,452	13	25
Venetian Sequin .....	997	8,442	010	8,452	18	24-09
Portuguese Old Dobra of 12800 Reis .....	915	26,196	2,438	28,629	100	60-00
"  Half-Dobra of 6400 Reis .....	915	13,074	1,214	14,288	50	29-80
Turkish Gold Medjidie, or Lira Turca (New)	..	..	..	..	26	..



